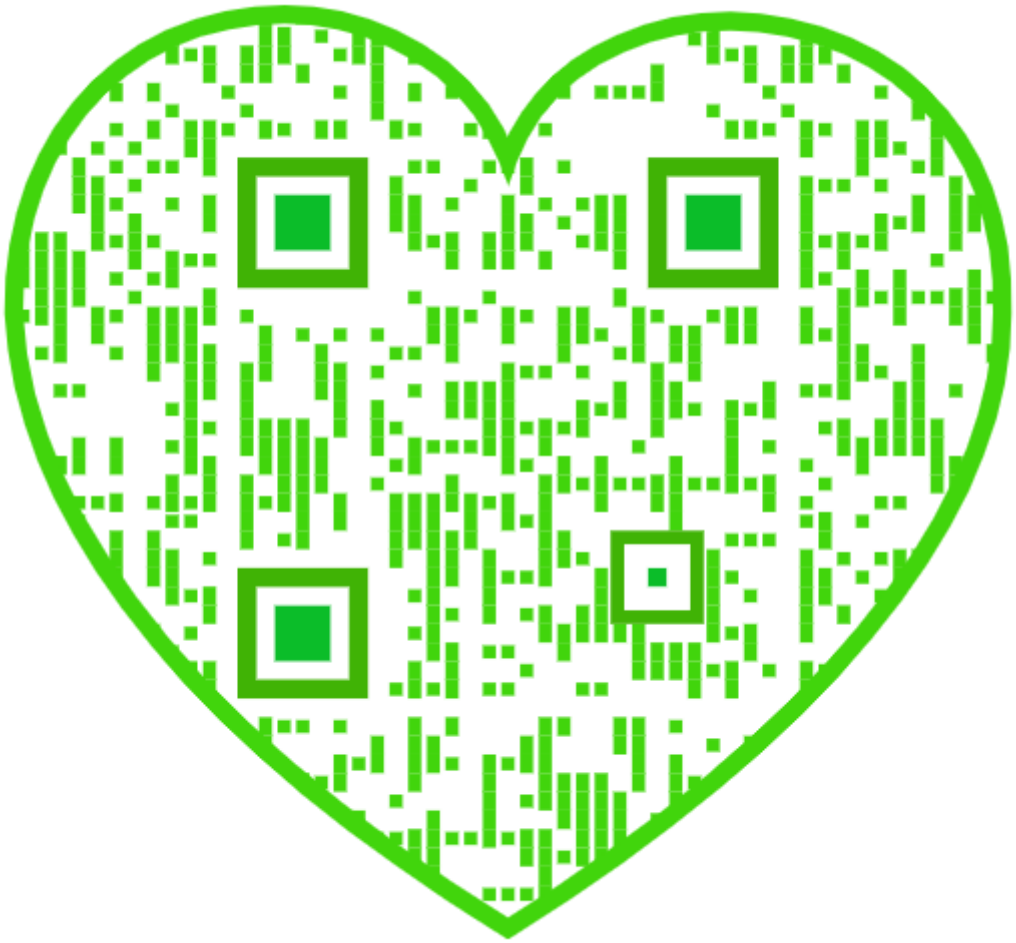
MEARNS
ON THE
CULTURE
OF THE VINE



A TREATISE

ON THE

POT-CULTURE OF THE GRAPE,

(VITIS VINIFERA.)

BY JOHN MEARNS, F.H.S.,

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PREFACE.

It is the object of the Author of this little book to draw the attention of the amateur, and of young gardeners generally, to one of the most interesting branches of the horticultural art, which nevertheless has been long overlooked; and even at the present day is too much slighted by many practical men—the culture of grapes in pots.

A more accurate acquaintance with this truly interesting branch of horticulture would tend greatly to counteract the various misrepresentations respecting its merits which are prevalent amongst us.

The Author is particularly anxious to establish this method of culture upon fixed principles:—to prove by unequivocal experiments, that grapes of superior quality can be produced in pots, and ripened at a comparatively early period. By so doing he will furnish the amateur with a delightful source of instructive amusement: one, which, while it affords

relaxation to himself, may be rendered profitable; and therefore beneficial to his family.

The professional horticulturist will also find his account in it; for he may be assured that the culture of vines, in pots, if conducted scientifically, upon a regular system, will not fail honourably to reward his utmost exertions. Gentlemen of taste are fond of improvement—they love to foster and encourage a spirit of enterprise; and proof is not wanting that young men of ability have been sought for, with the express object of growing Vines in pots. It is a delightful thing to see a vinery fifty feet long so furnished; richly displaying several hundred bunches of fine Muscats, Hamburgh, St. Peter's, and Constantia grapes.

A young man of steady conduct, and industrious, moral habits, has thus been known to rise in credit; and to become the confidential servant of a benevolent master.

The culture of the Vine in pots may indeed be found troublesome in the first instance, but as every process is before the eye, and at his immediate command, the gardener will soon begin to perceive any cause of success or of failure. Knowledge will thus come in aid of his exertions, and then his

labour (at least its irksomeness) will terminate; for success will render his avocation a source of great delight. This mode of grape-growing is new, and being understood by few, has, like every new invention, been scouted by the ignorant, and abused by the malicious and the prejudiced.

It is not long since the celebrated Dr. Harvey had the effrontery to tell the worldthat the blood circulated. What abuse, what contumely, and even insults, did he not receive from the faculty of his time! What can we think at this period of those generous critics? We now roam in the splendour of gas illumination, by which night is, as it were, converted into day, and security provided at all hours. Thirty years have now elapsed since gas was denounced, as a nuisance—as the very harbinger of destruction.

If possible, steam suffered still greater obloquy; but now, its power, by land and water, is equally admitted, and admired. The Author of this treatise hopes that the culture of the Vine in pots; and by the coiling system, will, by and by, be rendered more familiar; and that, in proportion as it becomes really understood, it will be duly appreciated, and its merits acknowledged.

In the meanwhile to make the subject complete, as well as more interesting, it was suggested to me to enter briefly into the natural history of the vine; and after going over its history by several authors, I could find none so suitable for my views of the subjects, as that given in Loudon's invaluable Encyclopædia of Gardening; and the Domestic Gardener's Manual; works which ought to be in the possession of every lover of gardening.

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NATURAL HISTORY

OF

THE GRAPE-VINE.

VITIS VINIFERA—WINE-PRODUCING VINE.

CLASS V., ORDER I., of Linnæus (*Pentandria Monogynia*).
NATURAL ORDER, LIV.—*Ampelideæ*; Tribe I., *Viniferæ*.

THE GRAPE-VINE is a deciduous trailing, or a climbing hardy tree, or shrub; for if it has nothing for its tendrils to clasp round, and by that means climb, it must trail on the surface; by such support at first, it will grow into large timber trees, it is said, of immense size. The branches are very flexible, with short jointed shoots; the leaves large, if the vines are vigorous, lobed, entire, or serrated, and downy, or smooth. It is deciduous; and as the leaves come to maturity, they become tinged with the predominating colour of the grape they bear; so that the sort, in some measure, can be ascertained by the au-

tumnal tint before the fruit is seen. Red, black, or purple grapes will have a red or purple tint towards autumn, and the shade of colour will be in proportion to the colouring matter in the grape; and those upon white, green, or yellow grapes changing to the colours which the grapes assume when ripe.

The breadth of the leaf varies, according to the sort and vigour of the plant, from five inches to eight or ten, and even more than twelve inches; length of the foot-stalks, from four to eight or nine inches.

The generic character of the genus *Vitis* is—*Calyx* 5-parted; *Petals* 5, small, deciduous; *Germen* oval, with no style, surmounted by an obtuse stigma; the germen becoming a round or an oval berry, unilocular, or of one cell, containing from two to five seeds which are pointed at one end. The *Flowers* are produced in large oblong racemes, or clusters, on the shoots of the same season, and are of a greenish colour; they emit a pleasing odour, though not agreeable to many persons; they generally appear in June in the natural atmosphere, but in the forcing department may be in bloom the year round. The succeeding clusters of berries are the *grape* (from the French *grappes de raisins*), each single berry of which, according to the variety, is in shape either globular, oval, ovate, or oblong; and, as previously stated, are either black, purple, red, grizzly, amber, white, green, sometimes striped, or a variation of some of those tints. Every berry should inclose five small heart or pear shaped stones, though, as

some generally fail, they have seldom more than three; and some varieties, as they attain a certain age, as the ascalon or sultana raisin, none. The skin is smooth, the pulp and juice of a sweet, poignant, generous flavour, vinous or musky. The weight of a berry depends not only on its size but on the thickness of its skin, and the texture of the flesh, the lightest being the thin-skinned and juicy sorts, as the sweet-water and muscadines; and what are considered large berries of these varieties will weigh from five to seven pennyweights, and measure from one to two-thirds of an inch in girth. I have had berries of the black Tripoli kind frequently above two inches in girth, and perfectly formed. A good-sized bunch of some of the best sorts will weigh from one to four pounds; but bunches of the Syrian grape have been grown that have weighed forty pounds, and in this country, from ten to nineteen pounds weight. A single vine in a large pot, or grown as a dwarf standard, in the manner practised in the vineyards in the north of France, generally produces from three to nine bunches; but Mr. Loudon observes, that by superior management in gardens in England, the number of bunches is prodigiously increased, and that one plant, of the red Hamburgh sort, in the vinery of the royal gardens at Hampton Court, has produced 2200 bunches, averaging one pound each, or in all nearly a ton. That at Valentine's (*its parent*), in Essex, has produced 2000 bunches, of nearly the same average weight.

The age to which the vine will attain in warm

climates is so great as not to be known. It is supposed to be equal, or even to surpass that of the oak. Pliny speaks of a vine which had existed six hundred years; and Bosc says, there are vines in Burgundy upwards of four hundred years of age. In Italy there are vineyards which have been in a flourishing state for upwards of three centuries; and Miller tells us, that a vineyard a hundred years old is reckoned young. The extent of the branches of the vine, in certain situations and circumstances, is commensurate with its produce and age. In the hedges of Italy and woods of America, they are found overtopping the highest elm and poplar trees; and in England, one plant, trained against a row of houses in Northallerton (some years dead), covered a space, in 1585, of one hundred and thirty-seven square yards; it was then about one hundred years old. That at Hampton Court, nearly of the same age, occupies above one hundred and sixteen square yards; and that at Valentine's, in Essex, about one hundred and forty-seven square yards. The size to which the trunk or stem sometimes attains, in foreign countries, is so great as to have afforded planks fifteen inches broad, for furniture, and statues; and even in this country, the Northallerton vine above-mentioned, in 1785, measured four feet in circumference near the ground; and one branch of the Hampton Court vine measured one hundred and fourteen feet in length. Vine timber is of great durability. It may be remarked, that vines regularly pruned and dressed can rarely attain similar magnitudes, nor is it desirable

that they should; as in that case all the vigour of the plant would be wasted in making wood.

The native country of the vine, like most of our acclimated fruits, is generally considered to be *Persia;* and Dr. Sickler (*Geschichte der Obst. Cult.*, vol. i.) has given a learned and curious account of its migration to Egypt, Greece, and Sicily. From Sicily it is supposed to have found its way to Italy, Spain, and France; and in the latter country it is believed to have been cultivated in the time of the Antonines, in the second century. It has been found wild in North America, and is now considered as a native, or naturalised, in the temperate climes of both hemispheres. In the old world, its culture forms a branch of rural economy, from the 21st to the 51st degree of north latitude, or from Schiraz, in Persia, to Coblentz, on the Rhine. Some vineyards are to be found even near Dresden and in Moravia; and, by means of garden-culture, it is made to produce fruit for the table still farther north, being grown to a considerable degree of perfection in the hot-houses of St. Petersburgh and Stockholm.

The introduction of the vine into Britain is supposed by some to have taken place under the first Roman governors, though, from Tacitus, it appears to have been wanting in Agricola's time. There is evidence, however, to prove that vineyards were planted here in the year 280, A.D., and that wine was made in England towards the end of the third century, under the Emperor

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since Columella, by whose names he has distinguished many of his tribes; the others by their local appellations. The table of grape-vines here given is, we acknowledge, very imperfect, but it contains all the information which we have been able to embody from the best authors, and especially from Speechley and Forsyth. More than triple the names it contains might have been inserted, but without being accompanied by any descriptive particulars they could be of no real use.*

In the *second* edition of the catalogue of fruits in the gardens of the London Horticultural Society, where, for several years, much labour and pains have been taken in endeavouring to arrange the grape-vines and other fruits, it was considered neeessary, at the commencement of their list, to make the following remark; and as I am desirous of keeping to that list, which I consider the best, I beg to repeat it:—

"The varieties of grapes are found to be in great confusion, and much difference of opinion exists respecting the comparative merits, as well as the nomenclature, of many of the sorts. In order to obtain sufficient knowledge on this subject, it is evident that a large extent of glass is requisite, under which the various kinds may be satisfactorily proved, and their synonyms ascertained. Until such is provided, much uncertainty must remain in regard to this important class of fruits. In the

* Encyclopædia of Gardening.

meantime, the generally known and acknowledged merits and characters of some have been given; others, less certain, have been left without attaching any remark till circumstances admit of the whole being properly examined. The abbreviations are as follows :—"

Colour—bl., blackish; g., green; p., pale; d., dark; pur., purple; w., white; y., yellowish; r., reddish.

Quality—1, good; 2, middling; 3, indifferent, or bad.

Situation—h., hothouse; v., vinery; w., wall.

Bunch—comp., compact.

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
Aleatico (du Pô), see Miller's Burgundy								
1. Aleppo	loose	w. r.	round	thin	sweet	2	h. v.	Striped
Raisin d'Alep.								
2. Alexandrian Ciotat	long	y. w.	oval	thin	sweet	1	h. v	Sets irregularly
3. Alexander's	small	bl.	oval	thick		3		A fox grape; bad
Schuylkill Muscadine								
4. Alicant	long	bl.	oval	thick	sweet	2	h. v.	
Black Spanish								
Teinturier								
Black Valentia (of some)								
Black Portugal, ib.								
Black Lisbon, ib.								
Black Prince, ib.								
5. Alicante Branca								
6. Alicante Prieto								
7. Amazon, Red								
8. Amiens	loose	w.	round	thin	sweet	2	v. w.	
Ansley's Large Oval								
Black, see Black Morocco								
Ascalon, Black, see Black Corinth								
9. Aramon								
10. Aspirant (de l'Hérault) . . .	comp.	bl.	round	thick		3	–	Not table
11. Astrachan, Large								

Saffiannoi								
12. Astrachan, Large Red-berried								
D'Arbois, see Royal Muscadine								
D'Arboyce (of Speechley)								
Auvergnat, see Black Cluster								
13. Black Britannia								
14. Black Cluster	comp.	bl.	roundish oval	thick	sweet	2	w.	
Auvergnat								
Burgundy								
Black Burgundy								
Early Black								
Small Black Cluster								
15. Black Cluster, Scarlet leaved	small	bl.	oval	thick	. .	3	w.	A wine grape.
Large Black Cluster								
16. Black July, Early	comp.	bl.	round	thick	sweet	2	w.	The earliest.
Maurillon Hâtif								
Madeleine								
Madeleine Noire								
Raisin Précoce								
17. Black Prince	long	bl.	oval	thick	sweet	2	v. w.	Rather early.
Sir Abraham Pytches' Black								
Black Prince, see Alicant								
18. Black Prince, Stewart's								
19. Black Prince, Williams's								
Black Spanish, see Alicant								
Blacksmith's White Cluster, see Scotch White Cluster								
20. Blanche								

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
Blood-red, see Claret								
21. Bland's Virginian	small	p. r.	round	thick	foxy	3	. .	Bad; a var. of Vitis Labrusca
V. Blanda								
V. Labrusca Blanda								
Bland's Fox Grape								
Bland's Virginian								
22. Boston								
23. Boudales (des Hautes Pyrénées)	long	r.	round	. .	muscat	1	v. w.	Resembles Red Frontignan.
24. Bual, White								
Burgundy, see Black Cluster								
Burgundy, Black, see Black Cluster								
25. Burgundy (Miller's) . . .	comp.	bl.	round, oval	thin	sweet	1	w.	Bears well on open wall; an old var.; has its name from the hoary pubescence, or mealy colour, of its leaves.
Le Meunier								
Miller								
Alealico du Pô								
Maurillon Taconné								
Fromenté								
Resseau								
Farineux Noir								
Savagnien Noir								
26. Cambridge Botanic Garden .	long	bl.	oval	thick	sweet	2	v. w.	Good bearer, and ripens out.
27. Cape, Red								
28. Caswall's Small Black								
29. Catesby's								

Chasselas, see Royal Muscadine								
Chasselas de Fontainebleau, see Royal Muscadine								
Chasselas Doré, see Royal Muscadine								
Chasselas, White, see Royal Muscadine								
30. Chasselas Hâtif, Petit . .	loose	p. g.	round	thin	sweet	2	w.	
31. Chasselas, Knight's Variegated	loose	r. w.	round	thin	sweet	2	v. w.	
32. Chasselas Musqué	loose	w.	round	thin	muscat	1	v. w.	
33. Chasselas Noir								
34. Chasselas Précoce	. .	. .	. .	. .	t	1	v. w.	Resembles much the Sweet-water; seems earlier and finer.
35. Chasselas Red *Chasselas Rouge*								
36. Chasselas Rose								
37. Cephalonian								
38. Ciotat	long	w.	round	thin	sweet	2	v.	Easily distinguished by its much divided leaves.
Parsley-leaved Muscadine *Raisin d'Autriche* *White Parsley-leaved*								
39. Clairette								
40. Clairette Blanche (de l'Hérault)								
41. Clairette Rose	loose	w p r	oval	thin	sweet	2	v. w.	
42. Claret	comp.	bl.	rd. oval	thick	harsh	2	v.	Leaves become red.
Blood-red								
43. Cochin China	large	bl.	oval	thick	sweet	2	h.	

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
44. Constantia, Black								
45. Constantia Nepean								
Constantia, Purple, see Black Frontignan								
46. Constantia, Red								
47. Corinth								
Des Dames								
48. Corinth, Black	small	bl.	round	thin	sweet		v.	Stoneless : the Black Currant of the shops.
Zante								
Black Ascalon								
Currant								
49. Corinth, White	small	w.	rd. oval	thin	sweet	2	v.	
50. Cornichon, Blanc	loose	w.	oblong	thick	. .	3	h.	Keeps long.
Finger								
Cumberland Lodge, see Esperione								
Currant, see Black Corinth								
51. Damson	. .	purp.	oval	. .	. .	3	h.	Austere.
52. Damascus, Black . . .	large	bl.	round	thin	sweet	1	h.	Late : valuable, but rather shy bearer.
Worksop Manor Grape								
53. Dedo des Dames.								
Des Dames, see Corinth								
54. Diagalvis, White								
55. Elford	. .	w.	. .	. .	sweet	1	. .	
56. Elsinburgh	comp.	purp.	round	thick	foxy	3	w.	Bad: a va. of V. Labrusca.

Smart's Elsinburgh								
Vitis Elsinburghii								
57. Esperione	large	purp.	round	thick	sweet	2	v. w.	A good hardy grape: bears well.
Hardy Blue Windsor								
Turner's Black								
Cumberland Lodge								
58. Ferrar, Black								
59. Ferrar, Large Black								
Finger, see Cornichon, Blanc								
60. Four Oaks	large	bl.	. .	. .	. .	2		
Warwickshire Seedling								
Fromenté, see Miller's Burgundy								
Farineux Noir, see Miller's Burgundy								
61. Frankenthal	large	bl.	rd. oval	thick	sweet	1	v.	Closely resembles Black Hamburgh.
Frankendale								
62. Frontignan, Black . . .	long	bl.	round	thin	muscat	1	h.v.w.	Good bearer.
Muscat Noir								
Purple Frontignan								
Purple Constantia								
Violet Frontignan								
63. Frontignan, Blue . . .	comp.	purp	round	thick	muscat	1	v.	
64. Frontignan, Grizzly . . .	long	y. r.	round	thick	muscat	1	h. v.	Excellent.
Muscat Gris.								
65. Frontignan, Red	long	r.	round	thick	muscat	1	v. w.	Do.
Muscat Rouge								
66. Frontignan, White . . .	large	w.	round	thin	muscat	1	h.v.w.	By many esteemed the best.
Muscat Blanc	comp.							

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
Aleatico (*du Pô*), see Miller's Burgundy								
1. Aleppo	loose	w. r.	round	thin	sweet	2	h. v.	Striped
Raisin d'Alep.								
2. Alexandrian Ciotat	long	y. w.	oval	thin	sweet	1	h. v	Sets irregularly
3. Alexander's	small	bl.	oval	thick		3		A fox grape ; bad
Schuylkill Muscadine								
4. Alicant	long	bl.	oval	thick	sweet	2	h. v.	
Black Spanish								
Teinturier								
Black Valentia (of some)								
Black Portugal, ib.								
Black Lisbon, ib.								
Black Prince, ib.								
5. Alicante Branca								
6. Alicante Prieto								
7. Amazon, Red								
8. Amiens	loose	w.	round	thin	sweet	2	v. w.	
Ansley's Large Oval								
Black, see Black Morocco								
Ascalon, Black, see Black Corinth								
9. Aramon								
10. Aspirant (de l'Hérault) . . .	comp.	bl.	round	thick		3	–	Not table
11. Astrachan, Large								

Saffiannoi								
12. Astrachan, Large Red-berried								
D'Arbois, see Royal Muscadine								
D'Arboyce (of Speechley)								
Auvergnat, see Black Cluster								
13. Black Britannia								
14. Black Cluster	comp.	bl.	round-ish oval	thick	sweet	2	w.	
Auvergnat								
Burgundy								
Black Burgundy								
Early Black								
Small Black Cluster								
15. Black Cluster, Scarlet leaved	small	bl.	oval	thick	. .	3	w.	A wine grape.
Large Black Cluster								
16. Black July, Early	comp.	bl.	round	thick	sweet	2	w.	The earliest.
Maurillon Hâtif								
Madeleine								
Madeleine Noire								
Raisin Précoce								
17. Black Prince	long	bl.	oval	thick	sweet	2	v. w.	Rather early.
Sir Abraham Pytches' Black								
Black Prince, see Alicant								
18. Black Prince, Stewart's								
19. Black Prince, Williams's								
Black Spanish, see Alicant								
Blacksmith's White Cluster, see Scotch White Cluster								
20. Blanche								

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
Blood-red, see Claret								
21. Bland's Virginian	small	p. r.	round	thick	foxy	3	. .	Bad; a var. of Vitis Labrusca
V. Blanda								
V. Labrusca Blanda								
Bland's Fox Grape								
Bland's Virginian								
22. Boston								
23. Boudales (des Hautes Pyrénées)	long	r.	round	. .	muscat	1	v. w.	Resembles Red Frontignan.
24. Bual, White								
Burgundy, see Black Cluster								
Burgundy, Black, see Black Cluster								
25. Burgundy (Miller's) . . .	comp.	bl.	round, oval	thin	sweet	1	w.	Bears well on open wall; an old var.; has its name from the hoary pubescence, or mealy colour, of its leaves.
Le Meunier								
Miller								
Aleatico du Pô								
Maurillon Taconné								
Fromenté								
Resseau								
Farineux Noir								
Savagnien Noir								
26. Cambridge Botanic Garden .	long	bl.	oval	thick	sweet	2	v. w.	Good bearer, and ripens out.
27. Cape, Red								
28. Caswall's Small Black								
29. Catawby's								

Chasselas, see Royal Muscadine								
Chasselas de Fontainebleau, see Royal Muscadine								
Chasselas Doré, see Royal Muscadine								
Chasselas, White, see Royal Muscadine								
30. Chasselas Hâtif, Petit . .	loose	p. g.	round	thin	sweet	2	w.	
31. Chasselas, Knight's Variegated	loose	r. w.	round	thin	sweet	2	v. w.	
32. Chasselas Musqué	loose	w.	round	thin	muscat	1	v. w.	
33. Chasselas Noir								
34. Chasselas Précoce	. .	. .	. .	. .	t	1	v. w.	Resembles much the Sweet-water; seems earlier and finer.
35. Chasselas Red *Chasselas Rouge*								
36. Chasselas Rose								
37. Cephalonian								
38. Ciotat	long	w.	round	thin	sweet	2	v.	Easily distinguished by its much divided leaves.
Parsley-leaved Muscadine *Raisin d'Autriche* *White Parsley-leaved*								
39. Clairette								
40. Clairette Blanche (de l'Hérault)								
41. Clairette Rose	loose	w p r	oval	thin	sweet	2	v. w.	
42. Claret	comp.	bl.	rd. oval	thick	harsh	2	v.	Leaves become red.
Blood-red								
43. Cochin China	large	bl.	oval	thick	sweet	2	h.	

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
44. Constantia, Black								
45. Constantia Nepean								
Constantia, Purple, see Black Frontignan								
46. Constantia, Red								
47. Corinth								
Des Dames								
48. Corinth, Black	small	bl.	round	thin	sweet		v.	Stoneless : the Black Currant of the shops.
Zante								
Black Ascalon								
Currant								
49. Corinth, White	small	w.	rd. oval	thin	sweet	2	v.	
50. Cornichon, Blanc	loose	w.	oblong	thick	. .	3	h.	Keeps long.
Finger								
Cumberland Lodge, see Esperione								
Currant, see Black Corinth								
51. Damson	. .	purp.	oval	. .	. .	3	h.	Austere.
52. Damascus, Black . . .	large	bl.	round	thin	sweet	1	h.	Late : valuable, but rather shy bearer.
Worksop Manor Grape								
53. Dedo des Dames.								
Des Dames, see Corinth								
54. Diagalvis, White								
55. Elford	. .	w.	. .	. .	sweet	1	. .	
56. Elsinburgh	comp.	purp.	round	thick	foxy	3	w.	Bad: a va. of V. Labrusca.

Smart's Elsinburgh *Vitis Elsinburghii*								
57. Esperione	large	purp.	round	thick	sweet	2	v. w.	A good hardy grape: bears well.
Hardy Blue Windsor *Turner's Black* *Cumberland Lodge*								
58. Ferrar, Black								
59. Ferrar, Large Black *Finger*, see Cornichon, Blanc								
60. Four Oaks	large	bl.	. .	. .	. .	2		
Warwickshire Seedling *Fromenté*, see Miller's Burgundy *Farineux Noir*, see Miller's Burgundy								
61. Frankenthal	large	bl.	rd. oval	thick	sweet	1	v.	Closely resembles Black Hamburgh.
Frankendale								
62. Frontignan, Black . . .	long	bl.	round	thin	muscat	1	h.v.w.	Good bearer.
Muscat Noir *Purple Frontignan* *Purple Constantia* *Violet Frontignan*								
63. Frontignan, Blue . . .	comp.	purp	round	thick	muscat	1	v.	
64. Frontignan, Grizzly . . .	long	y. r.	round	thick	muscat	1	h. v.	Excellent.
Muscat Gris.								
65. Frontignan, Red	long	r.	round	thick	muscat	1	v. w.	Do.
Muscat Rouge								
66. Frontignan, White . . .	large	w.	round	thin	muscat	1	h.v.w.	By many esteemed the best.
Muscat Blanc	comp.							

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
Raisin de Frontignan *Frontignan Alexandrien*, see White Muscat of Alexandria								
67. Gibraltar, Black	large	d. r.	round	thin	sweet	1	h. v.	
Gibraltar *Red Hamburgh*								
68. Grange's Seedling, White								
69. Graefenberger	. .	. .	. .	. .	. .		. .	A wine grape.
70. Greek	long	g. m.	oval	thin	sweet	2	v.	
Green Chee								
71. Gros Noir Musqué								
72. Gros Rouge de Provence								
73. Hamburgh, Black								
74. Hamburgh, Warner's Black	large	bl.	rd. oval	thick	sweet	1	h. v.	Well known to be, as it deserves, the most commonly cultivated for a general crop.
Black Hamburgh *Warner's* *Red Hamburgh* (of some)								
75. Hamburgh, Brown								
76. Hamburgh, Braddick's Seedling	large	bl.	rd. oval	thick	sweet	1	h. v.	Resembles Warner's Black Hamburgh.
77. Hamburgh, Purple								
Hamburgh, Red, see Black Gibraltar, and Warner's Black Hamburgh								

78. Hamburgh, White . . . *Lisbon* *Portugal* *Hardy Blue Windsor*, see Esperione.	loose	w.	oval	thick	. .	2	h.	Like Syrian; is the Portugal grape of the shops.
79. Hardy Purple, Harrison's								
80. Hickling's White Seedling								
81. Horsforth Seedling . . . *Rhodes's*	large	bl.	oval	thick	sweet	2	h. v.	Bunches and berries very large.
82. Inistiogue								
83. Isabella . . . . . *V. Isabella* *V. Labrusca Isabella*	loose	purp.	oval	thick	foxy	3	. .	Var. of Vitis Labrusca, and bad.
84. Kishmish, Large Stoneless								
85. Kishmish, White . . . . *Stoneless Round-berried*	small	w.	round	thin	sweet	2	v. w.	Stoneless.
86. Large Black, Bound's								
87. Large White, Savage's *Lisbon*, see White Hamburgh *Lisbon, Black*, see Alicant								
88. Lombardy . . . . . *Flame-coloured Tokay* *Red Rhenish*	large	r.	round	thick	. .	2	v. w.	Bunches very large.
89. Lombardy, Black . . . *West's St. Peter's*	large	bl.	round	thin	sweet	1	h.	A late sort.
90. Lunel . . . . . *White Muscat of Lunel.*	large	w.	oval	thin	muscat	1	h. v.	
91. Madeira, Red								
92. Madeira, White								

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
Madeleine, see Early Black July								
93. Madeleine Blanche								
Madeleine Noire, see Early Black July								
Malaga, see White Muscat of Alexandria								
94. Malaga (du Lot)	comp.	bl.	round	thick	sweet	2	w.	Early, like Black Cluster.
95. Malmsey								
Malvoisie, see Blue Tokay								
96. Mattock's Seedling								
97. Malvasia Negra								
Maroquin d'Espagne, see Black Morocco								
Maurillon Hâtif, see Early Black July								
98. Maurillon Noir Panaché								
Maurillon Taconné, see Miller's Burgundy								
Le Meunier, see Miller's Burgundy								
99. Mignonne, White Cluster .	small	w.	round	. .	sweet	1	w.	
Miller, see Miller's Burgundy								
100. Morocco, Black	large	d. r.	ov. ht.	thick	sweet	1	h.	

Ansley's Large Oval Black *Maroquin d'Espagne* *Le Cœur*								
101. Muscadel *White Muscadel*								
102. Muscadel, Black . . . *Black Raisin*	large	bl.	oval	thick	sweet	2	h.	
103. Muscadel, Red								
104. Muscadine, Amber								
105. Muscadine, Black . . . *Muscadine, Parsley-leaved*, see Ciotat	comp.	bl.	oval	thick	sweet	1	v.	
106. Muscadine, Carolina								
107. Muscadine, New Dwarf								
108. Muscadine, Royal . . . *Chasselas* *Chasselas Doré* *Chasselas de Fontainebleau* *D'Arbois* *D'Arboyce* (of Speechley) *White Chasselas* *Raisin de Champagne*	large	w.	round	thin	sweet	2	v. w.	Good for the open wall.
109. Muscadine, Braddick's White *Muscadine Schuylkill*, see Alexander's	large	w.	round	thin	sweet	2	v. w.	Very like the Royal Muscadine.
110. Muscat of Alexandria, Black *Muscat of Alexandria, Red*								

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
111. Muscat of Alexandria, White *Alexandrian Frontignan* *Muscat of Jerusalem* *White Muscat* *Tottenham Park Muscat* *Malaga* *Passe-Musquée* *Passe-Musquée, White* *Passe-Longue Musquée*	long	w.	oval.	thick	muscat	1	h.	Adapted for the warmest situations in which vines are grown.
112. Muscat of Alexandria, Round *Muscat Blanc*, see White Frontignan								
113. Muscat Blanc Doré								
114. Muscat Blanc de Jura								
115. Muscat, Cannon Hall								
116. Muscat d'Espagne *Muscat Gris*, see Grizzly Frontignan *Muscat Noir*, see Black Frontignan *Muscat Rouge*, see Red Frontignan								
117. Muscat Noir de Jura								
118. Muscat Violet								

Muscat of Lunel, White, see Lunel								
119. Muscat, Zante								
120. Nice, Black								
121. Nice, White								
122. Negro Molle								
123. Œillaude								
124. Olivette								
125. Oswigsburgh	. .	w.	round.	thick	foxy	3	w.	Musky, harsh flavour. A variety of V. Labrusca.
V. Oswigsburghii								
Schuylkill								
Palestine, Black, see Black St. Peter's								
126. Parmata Cluster								
Parsley-leavea, White, see Ciotat								
Parsley-leaved, see Ciotat								
Passe-Musquée, see White Muscat of Alexandria								
Passe-Longue Musquée, see White Muscat of Alexandria								
Pearl, see Royal Muscadine								
127. Pearl	round	b. w.	oblong	thin	sweet	2	w.	
128. Petersburgh . . . . . Black St. Petersburgh	loose	bl.	round	thick	sweet	1	v.	
129. Pitmaston White Cluster .	comp.	w.	round	. .	sweet	1	v. w.	Ripens on a wall.
130. Poonah	large	d. r.	oval.	thick	sweet	2	h.	Late; requires a high temperature.
131. Poonah, Long Black								

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
Portugal, see White Hamburgh								
Portugal, Black, see Alicant								
132. Portugal, Amber-coloured								
Rhodes's, see Horsforth Seedling								
Port Wine, see Red Port								
Raisin d'Alep, see Aleppo								
Raisin d'Autriche, see Ciotat.								
Raisin, Black, see Black Muscadel.								
133. Raisin des Carmes . . .	long	purp.	oval	thick	sweet	1	h. v.	
Raisin de Champagne, see Royal Muscadine								
Raisin de Frontignan, see White Frontignan								
Schuylkill, see Oswigsburgh								
Raisin Précoce, see Early Black July.								
134. Raisin Rouge de Schlossberg à Kreuznach								
135. Raisin, White								
136. Red Grape of Taurida								
137. Red Port								

Port Wine								
Rhenish, Red, see Lombardy								
Resseau, see Miller's Burgundy.								
138. Robola								
139. Rüdesheimerberg								
Saffiannoi, see Large Astrachan								
140. Saint Peter's, Black . . .	loose	bl.	round	thin	sweet	2	v.	Ripens late: subject to crack.
Saint Peter's								
Black Palestine								
Saint Peter's, West's, see Black Lombardy								
141. Saint Peter's, Money's West's								
St. Petersburgh, Black, see Petersburgh								
142. Saint Peter's, Oldaker's, West's	large	bl.	round	thin	sweet	1	v.	Will hang till March.
143. Savagnien Blanc								
Savagnien Noir, see Miller's Burgundy								
144. Schloss Johannisberg . .	. .	. .	. .	. .	. .		. .	A wine grape.
145. Scuppernong, Black . .	. .	. .	. .	. .	. .		. .	An American variety.
146. St. Emilien								
147. Sicilian, Large Black								
148. Sicilian, Large White								
Sir Abraham Pytches' Black, see Black Prince.								

NAME.	Bunch.	Colour.	Form of Berries.	Skin.	Flavour.	Quality.	Situation.	REMARKS.
149. Sir William Rowley's Black								
150. Spence's Seedling								
151. Steinberger								
152. Stoneless Oval-berried . . *Stoneless Round-berried*, see White Kishmish	small	w.	oval	thin	. .	2	v. w.	Stoneless: like the Kishmish, but oval.
153. Sweetwater, Black								
154. Sweetwater, Braddick's								
155. Sweetwater, Dutch								
156. Sweetwater, Grove End .	long	w.	oval	thin	sweet	1	v. w.	Early, and proper for a wall.
157. Sweetwater, Lord Bagot's								
158. Sweetwater, New								
159. Sweetwater, Stillward's								
160. Sweetwater, White . . .	loose	w.	round	thin	sweet	1	h.v.w.	
161. Syracuse Red	loose	r.	oval	thick	harsh	2	h.	Flesh hard.
162. Syrian	large	w.	oval	thick	sweet	2	h.	Skin thick.
163. Syrian, Lewestou . . .	loose	p. g.	ovate	thick	sweet	2	h.	Hangs long.
164. Teneriffe, Black *Teinturier*, see Alicant								
165. Tenta								
166. Terre Noire								
167. Texas, Diverse-leaved								
168. Tokay, Black								
169. Tokay, Blue . . . . *Malvoisie*	comp.	bl.	rd. oval	. .	. .	2	h. v.	For wine rather than dessert.

170. Tokay, Catawba	. .	. .	. .	. .	. .			Bad: American species.
171. Tokay, Charlsworth . .	comp.	w.	oval	thick	sweet	1	v.	
Tokay, Flame-coloured, see Lombardy								
172. Tokay, Genuine								
173. Tokay, White	comp.	w.	oval	thick	sweet	1	v.	Abundant bearer.
Turner's Black, see Esperione.								
Valentia, Black, see Alicant								
174. Tripoli, Black	loose	bl.	round	thin	sweet	1	h.	Late.
175. Varney's Seedling . .	loose	bl.	round	thin	sweet	1	h.	Late.
176. Verdal								
177. Verdelho	loose	y. g.	oval	thin	sweet	1	v. w.	Strong growing.
178. Wantage	large	r.	round	thick	. .	2	v. w.	Very like the Lombardy.
Warner's, see Warner's Black Hamburgh								
Warwickshire Seedling, see Four Oaks								
179. White Cluster, Scotch . .	comp.	w.	rd. oval	. .	sweet	1	v. w.	Hardy and early.
Blacksmith's White Cluster								
Worksop Manor, see Black Damascus								
180. Wortley-hall Seedling								
181. Yellow Stoneless Seedling								
182. Yellow Spanish								
Zante, see Black Corinth								
183. Zante Muscat—at Thorsby, Earl Manvers's								

For the benefit of readers, or those who may not have seen the list of vines prepared by Dr. Lindley for the Horticultural Society, the foregoing list is inserted; and in order that it may be clearly understood, I thought it best to take the following extract from Dr. Lindley's Preface, which is inserted by permission of the Society.

"At the time when the first edition of this catalogue was published, in 1826, it was considered that the progress which had then been made in determining the qualities and synonyms, and in settling the nomenclature of fruits, was not such as to justify the Society in attempting more than a mere list of their names. The subsequent experience of five years has so considerably diminished the difficulties which were then supposed to exist, that the Council have at length found themselves authorised in ordering the preparation of that which is now laid before the public.

"The plan which has been adopted on this occasion is as follows:—

"1. The arrangement of the varieties of each species, and also of the species themselves, is alphabetical according to the names in common use, and not according to those of botanists. For example; currants and gooseberries are placed respectively in the order of the letters C and G, and not under the collective term Ribes, as was the case in the last catalogue.

"2. The names arranged under each species consist both of those which are retained and of their synonyms; but these are distinguished by the former being numbered and printed in Roman

characters, and by the latter being without numbers, and in Italic characters. In order to render this part of the catalogue the more useful, the synonyms are introduced twice; both in their alphabetical position, when the name to which they properly belong is referred to, and also immediately following the names that are adopted in preference: but in the latter case they are printed more to the right than any other names. The catalogue will thus show at a glance not only of what adopted name any other is a synonym, but also what all the synonyms are of every adopted name.

"3. By columns and abbreviations, the meaning of which is explained under every different kind of fruit, a large number of the most important characters, by which the varieties are distinguished, has been compressed into a very small compass—thus, on reference to No. 89 in the list, we learn that the Lombardy is a large, black, round, thin-skinned, sweet grape, of the first quality, and will only mature its fruit perfectly in a hot-house. We learn further, from the last column, that it is a late sort. To these abbreviations a few useful remarks have often been added in a separate column.

"By these means it is hoped that a very considerable body of practically important information will have been combined in this edition of the catalogue.

"It will be remarked that the abbreviations, &c. have not been made use of in regard to every sort that is enumerated, and indeed that they are scarcely applied to one half. In these cases no certain information has been yet collected at the

garden relating to those varieties, the columns of which are blank, owing either to the trees not having fruited, or to inaccuracies having been discovered in the names of the plants received at the garden. These inaccuracies have taken place to an extent of which no one who has not personally inspected the progress of investigation can form an idea, and have caused more embarrassment than all other causes whatsoever taken together. It would, in many cases, have been easy to have filled up such blanks from books or such MSS. of the Society as have been collected independently of the garden; but it has been thought better, in order to avoid all misconception, that the characters now given should have been exclusively collected from observation on the very trees from which cuttings, &c. are taken for distribution. These blanks are perhaps of the less importance as they in general accompany varieties, the merit of which is not often likely to be very great.

"The grapes of Kashmeer, East Indies, and the neighbouring countries are," Wm. Moorcroft, Esq. states, "of many varieties, both of exotic and indigenous; of the former, are the Moskha, Sahibee, Hoosenee, and Kishmishee, which was introduced by the Emperor Juhangeer Kabool. The latter, or those indigenous and cultivated, are Pamuthil, Takree, Upamahee, Bura-kawur, Nika-kawur, Kacheeboor, Kanahepee, Harduch, and Kathoo Hoosnenee. The wild grapes are Deza, Kuwaduch, and Umburbaree.

"The four first are good; but it is said that those of similar name in Kabool are still better.

"The skirts of the southern face of the northern hills were formerly largely clothed with vines; and under Hindoo rule much wine was made.

"A little brandy is occasionally distilled even now, and under suitable management might vie with Cogniac."—*Hort. Transactions.*

NATURE OF SOILS.

"We are told and read," observes Mr. Towers, "of rich loams, hazel loams, sandy loams, light mellow earths, &c. &c., but all these terms are indefinite; and no one can follow the directions thus given without being subject to disappointment, for the loams and earths, which a person may believe to correspond with those he reads of, are susceptible of changes as numerous as are those that may be rung upon a peal of as many bells. Chemical analysis is the only source of correct information; and it is fortunate that a man who is of an inquiring turn of mind, and desirous to investigate causes, can, at a very trifling expense, either of money or time, arrive at a certainty of conclusion, which must be extremely satisfactory." The course of articles "On Chemistry, as connected with the Developement and Growth of Plants," will be found in vol. iv. of "Paxton's Horticultural Register." The passage just quoted, with information and instructions where to procure instruments for analysing soils, and the manner of conducting the analysis, and the several processes, will be found in the sixth article, vol. iv., page 3. The whole of the articles contain notices more or less important to those connected with horticulture or with agriculture. It is but

just here to add, that subsequently to the formation of the English Agricultural Society, now "The Royal Agricultural Society of England," "An Essay on the Analysis of Soils," by the Rev. Mr. Rham, was published in the first number of the Society's journal. It contains a series of most simple mechanical processes, by which any one not versed in chemistry can arrive at facts sufficiently instructive and satisfactory.

The soil that is most commonly employed for the culture of grapes in pots is a compost similar to that used for the growth of pine-apple plants; and, in fact, I made very little distinction until I went to the Duke of Portland's, at Welbeck Abbey; where, after a year's experience with vines in various soils, I found that they luxuriated more freely in a loose, FRESH-chopped turfy soil, taken from the top of a magnesian limestone rock, and which had been a sheep-walk for ages; it lay so thin upon the surface in many places, that in paring it close to the rock it was frequently only about three inches deep. I never, indeed, desired it deeper; for, as it was all richly impregnated with the excrementitious matter from the sheep-droppings, decomposition went on more rapidly in the pots, and during that process the genuine food of the plant is evolved. A degree of congenial warmth is generated also amongst the roots, which, I believe, is really the case with our usual mixtures for general pot culture. But this soil, after the action of all decomposable matter had ceased, became too adhesive, cloggy, and retentive of moisture. And I even found that the scrapings

off the roads, which were composed mostly of particles washed from the magnesian limestone with which that side of Nottinghamshire, around Worksop, as far as Boroughbridge, in Yorkshire, abounds, made the soil too retentive after a short time, so that I had recourse to those parts of roads where the scrapings were of granitic origin, containing silicious matter, the roads being covered to some depth with water-worn boulders; much brick rubbish had also been used: such material had been long accumulated by the road sides, and was dry and mellow. I had this material mixed well up with my fresh turfy soil, but not in a larger proportion than what I thought just sufficient to drain off the water freely through all its parts, and to permit the young roots to ramify freely therein. Although some of the land round Welbeck appears and is, loose, sandy, and light, yet, lying upon limestone, and being strongly impregnated with minute particles of magnesia in all its parts, it is consequently very retentive of moisture; therefore, for pot culture, much careful drainage, and a cautious selection of soils, was important, otherwise little success could have been expected.

Where the magnesian limestone abounds the gardener ought to be cautious, not only in the selection of his soils, but in the water which he uses. At Welbeck Abbey, a small river runs nearly close to the east side of the gardens, and the great body of it flows from an immense bed and hill of limestone rock, about half a mile above them. This water had the property of speedily

rendering the compost, however well prepared it might be, retentive.

Until I went to reside at Welbeck, it appeared the bad effects of such water upon the plants had never been noticed, and the potted plants frequently failed from some unsuspected cause. I had long suspected the bad effects of this water upon many plants that I could not recover by all the means I had applied; and these were plants which flourished under my care in Herefordshire, where the water is the best and softest in the kingdom. I had therefore a large reservoir fitted up for all the rain-water I could catch, for the purpose of general watering; its effects were soon obvious enough, but more especially so when applied to plants in pots.

Before quitting the subject of soils, it may be of importance to extract, in this place, part of a paper of the late T. A. Knight, Esq., President of the London Horticultural Society, published in vol. i., page 248, of the "Horticultural Transactions," which throws great light upon the advantages of green vegetable matter being employed for many kinds of plants in pots.

"I had been," he states, "engaged, in the year 1810, in some experiments, from which I hoped to obtain new varieties of the plum; but only one of the blossoms upon which I had operated escaped the excessive severity of the frost in the spring. The seed which this afforded having been preserved in mould during the winter, was, in March, placed in a small garden-pot, which was nearly filled with the living leaves and roots of grasses, mixed with a

small quantity of earth; and this was sufficiently covered with a layer of mould, which contained the *roots* only of grasses, to prevent, in a great measure, the growth of the plants which were buried. The pot, which contained about one-sixteenth of a square foot of mould and living vegetable matter, was placed under glass, but without artificial heat, and the plant appeared above the soil in the end of April.

"It was three times, during the summer, removed into a larger pot, and each time supplied with the same matter to feed upon; and in the end of October its roots occupied about the space of one-third of a square foot, its height above the surface of the mould being then nine feet seven inches."

He further states, that "In this experiment, the plum-stone was grown in the turf of the alluvial soil of a meadow."

"I had made," he remarks, "in preceding years many similar experiments with small trees (particularly those of the mulberry when bearing fruit in pots), with similar results; but I think it unnecessary to trespass on the time of the Society by stating these experiments, conceiving those I have mentioned to be sufficient to show that any given quantity of vegetable matter can generally be employed, in its recent and organised state, with much more advantage than when it has been decomposed, and no inconsiderable part of its component parts has been dissipated and lost during the progress of the putrefactive fermentation."

I am induced to make another extract in this

place, from vol. ii., page 368, of the "Horticultural Transactions," also from the pen of the late able and amiable President, as I think it will be important to those who are desirous of growing grapes in pots :—

"It is not, I believe, at all necessary that I should offer arguments to prove that a vine, which cannot be made to vegetate at all in the winter without a very high degree of heat, is not as well calculated for very early forcing, as one in which the powers of life are so excitable that it is prepared to vegetate strongly in the temperature of the open air in September, and in which the power to vegetate in a low temperature will continue to accumulate progressively till spring; but it will probably be objected that so large a crop cannot be obtained from vines of which the roots are confined in pots as from others. This objection however will, I believe, prove to be wholly unfounded whenever a very early crop is wanted, for vines and other fruit trees (as I have observed in former papers) when abundantly (but skilfully) supplied with water, and manure in a liquid state, require but a very small quantity of mould. A pot containing two cubic feet of very rich mould, with proper subsequent attention, is fully adequate to nourish a vine which, after being pruned in autumn, occupies twenty square feet of the roof of a hot-house; and I have constantly found the vines, in such pots, being abundantly supplied with nutritive water, of the kind named before, have produced more vigorous wood, when forced very early, than others of the same varieties, whose

roots were permitted to extend beyond the limits of the house."

In vol. ii., page 127, there is also a paper worthy of the attention of every horticulturist, on the effects of soil and liquid manure on the roots of trees growing in pots.

Some years since (1818) a gentleman (Peter Marsland, Esq.), then living at Woodbank, near Stockport, cultivated vines in pots so successfully that he had fruit for eleven months in the year in great perfection; he was so well satisfied with the method, of the superiority, and of the many advantages that result from it, as to give up growing the vine on the rafters altogether. The pots were placed on stages, and when the grapes were gathered he had one set removed and another brought in, by which means a succession of fruit was kept up during eleven months.

When a vine planted in a house is made to fruit at an unusual time it is not always found to bear well the following season, which is a serious inconvenience, particularly if the vine is extended over a large portion of the roof; but when the plants are kept in pots they can be replaced at little expense, and without trouble. These facts appear in the minutes of the Horticultural Society of London.

We find in the Horticultural Transactions, vol. iv., page 560, the following extract from the minutes:—

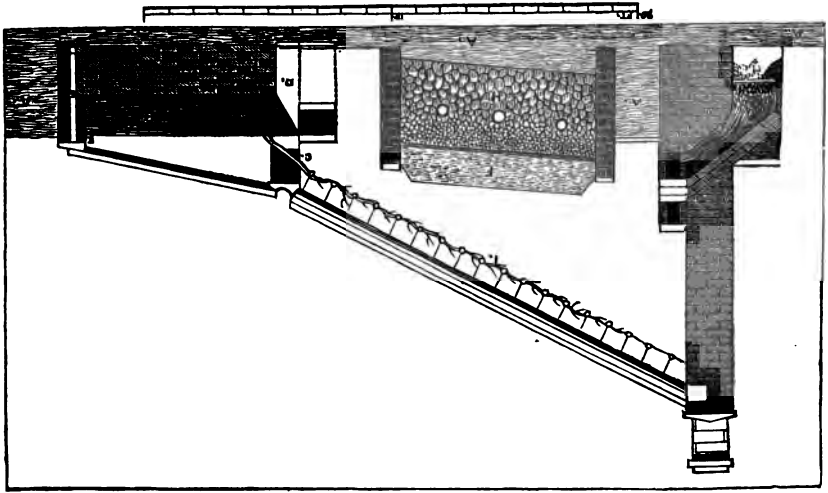
"October 3, 1820.—Mr. William Buck, gardener to the Hon. Greville Howard, Ilford, near Lichfield, exhibited seven bearing plants of vines

in pots, from the garden at Ilford Hall. The plants were one and two years old, from the eye or cutting, before they began to produce their present crop; each vine had three or four perfect-sized bunches on it; the varieties were the Red Frontignan, the Black Hamburgh, the White Frontignan, the Finger Grape, or Cornichon Blanc of Duhamel (by-the-bye a worthless grape), the Black Prince, the Black St. Peter's, and the White Muscadine. Mr. Buck finds this method of obtaining grapes answers particularly well, and by removing the pots in the winter months, when the fruit is full ripe, into a dry airy situation, he can preserve it fit for the table much longer than he can in the vinery, when cloudy and damp weather prevails."

ON VINE BORDERS.

THERE are many situations in all parts of the kingdom where the vine can only be cultivated after a very expensive border has been prepared for them, otherwise they will be prematurely shanked, shriveled, ripened imperfect, and of a bad colour, and tasteless. This proceeds principally from the roots getting too deep into a cold, *heavy*, wet subsoil; as at Welbeck Abbey, Osbarton, and very many other places, where the situations are too low, cold, and consequently too damp for most kinds of grapes.

In all such situations the roots ought to be *confined* and *chambered*, by having a cavity beneath them, as in the old large stove at Welbeck, represented in the accompanying engraving. The border there is only eight feet wide and eighteen inches deep, which has been found, under judicious management, to do remarkably well for the last seven years; at that time I had the old vines taken up, many of which were thirty years old, and replanted as soon as the borders were in readiness for their reception. In the house here represented arrangements are made for covering the prepared border, as well as the vine, with glass in the early forcing season. The rafters for this purpose are made portable, so as to be cleared off as soon as the



weather becomes sufficiently congenial; while the lights are over the roots it is the practice to throw open all the front of the house at C to admit the warm atmosphere of the house over the border; heated air is also introduced at D, as the flues are upon high arches. There is also a cavity all round the wall at E, to allow the heated air to circulate freely round the roots.

Direct atmospheric air and solar light are of such importance to the roots of the vine, that the intervention even of the best quality of glass should be removed as soon as the nights become sufficiently mild; by attending to this point, the grapes will be much finer both in colour and flavour than they would otherwise be. Under this system the vines at Welbeck Abbey are at the present time as flourishing as if I had then planted young vines, and much time was saved. They had more fruit upon them the first season that they were transplanted than they had produced for the four previous years.

The flags placed under the roots must not be close-jointed, but roughly broken, and just so as to hold fast the mortar, which is only pointed into them to prevent the possibility of any of the roots or rootlets getting underneath, but yet so that all superfluous water may freely drain through. The magnesian lime filters very freely, but most limes will do so, consequently there is no danger from over saturation if the stones have not been fitted too close together. It is safest and best to lay about two inches of broken bricks, stones, or tiles in the bottom, as drainage, before the soil is put

in; and to keep them hollow for a time, by covering them over with thin green sods, till they get properly established, they will then be of sufficient vigour to take up any superfluous moisture. If the compost is in readiness lay about one foot over the now-prepared floor, the same kind that I have recommended under the head of soil; that no manure of any other kind should at all be used where such fresh turfy soil is to be had, unless it may be considered necessary to keep it in a state of free filtration; for many soils are apt to become too cloggy after all decomposed matter has been consumed, and it is of the utmost importance to use every means to prevent it. Plant the vines carefully upon this soil, and lay all the roots in the form of the peacock's tail; then cover them six inches with the compost, but do not tread it; give all a good soaking of *soft* water only, to settle the fine particles of soil amongst the roots. The practice of carrying gravel walks over the vine border is much to be condemned; and to make a compost for the vine roots under a pine-pit, which is frequently done, is most inconsistent, as the roots naturally draw towards the light and atmospheric air as well as the tops. It is even a bad practice to litter or mulch vine borders in winter or for early forcing; if there is no glass for their protection it is much better to leave them exposed in these seasons, covering them in summer only with dung or litter; a contrary practice makes the border heavy, and is most injurious to the vine, and consequently to the grape.

Some soils are so very congenial to the vine that no kind of preparation is necessary, and I have managed vines very successfully without; but that is not the case with the major part of places where vines must be cultivated in this country. The vine being more of an upland than a lowland plant, it requires an upland soil, and a very dry and warm bottom. I like to confine all my vine roots rather than to hazard them in a diffused border, as I can then select the proper food for them; I know where the mouths are, and can ascertain, with but little labour, where to place the aliment that I consider most congenial to them. In dry weather I am certain where to find the rootlets when I want them; and in the swelling season of the fruit an abundance is taken up by them, which ought to be judiciously given.

When the roots become matted against the wall, at their extremities, I take a sharp spade and chop all through to the bottom, at about eighteen inches to two feet distant, and cast all the roots out of the trench, filling up again with the same fresh compost as at first, and smoothing the ends of the roughly cut roots; by these means the effect upon the vines becomes soon visible, a result which never can take place in diffused borders. I have very frequently taken off the whole of the top of such borders close to the main roots, not sparing the small rootlets, smoothed off the rough extremities, and forked in amongst them some fresh chopped sod; and whilst in the act of doing so, shaking up the principal roots with the fork, so as in some degree to remove them from their

old bed, and bring them into contact with fresh food. When filled up so as to allow for settling, give a good heavy watering, so that the fine particles may be freely admitted around the hollow lying roots.

It will be obvious from the subsequent remarks, that I set a far greater importance on a judicious attention to the roots than to top management; but in order to succeed, every part must be duly attended to.

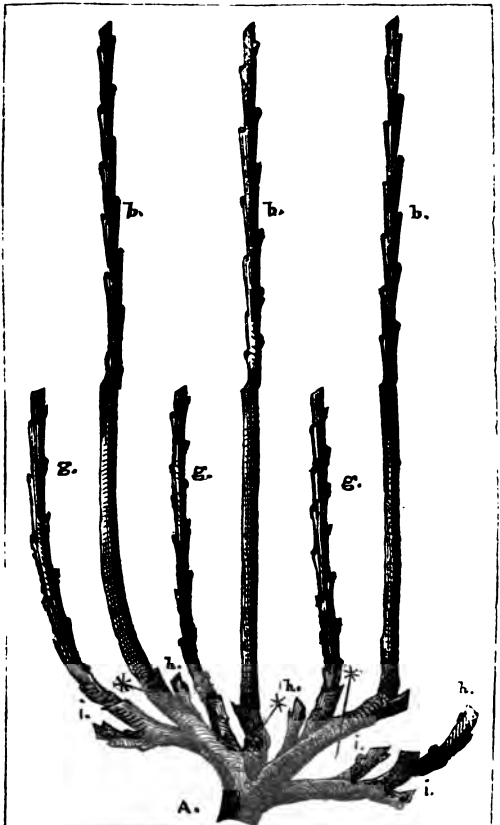
PROPAGATION.

WHEN I have been desirous of changing any vine, which I found worthless in my collection, and the condemned one thus adapted for my purpose, I have found it best to graft upon it the grape wanted, and if that lies contiguous for the operation, either from a neighbouring vine or in a pot, approach-grafting is the best. It may be pleasing for the amateur to know that he may detach young growing shoots from his approved sorts, and graft them successfully upon others, whose shoots are growing vigorously, by this simple process*. The shoots may be chosen from ten to fifteen inches long, and put on as soon as they are detached from the parent stem, cutting them off below the joint by a clean horizontal cut, as if for cuttings; or if slipped off from the older shoot, to smooth off the ragged end; and in the process of grafting place it in such a position that the detached end can be placed conveniently into a glass of water suspended near for the purpose, and in which it is to remain until it is united; at the time of performing the operation it is necessary to wrap a little moist moss *loosely* round the junction, which is to be kept moist as long as it is found necessary, when the water-glass, moss, and lower end of the scion, can be dispensed with, cut off the lower end close to the junction. During the process of uniting, the sun's rays must be kept from them during the middle of

the day. It is an interesting experiment and a very successful one, requiring, like the coiling and successful pot culture, a nice and very judicious attention; but to the enthusiastic horticulturist these cares are his delight, and he can accomplish, with apparent ease, niceties in his art which the lukewarm and indolent considers impossibilities or too tedious. Let the enterprising horticulturist persevere, and he will soon find himself amply rewarded, both by the success attending his operations, and the many enjoyments arising from them. But perhaps the process will be best understood by reference to the engraving, which represents a vine upon the long root, or successional system. All the rods here represented, when they have produced their fruit, must be cut off to where a sectional line with a * is inserted, and other rods from *g g g* take their place, the place of *g* being occupied by the rods springing from *h h h*, the shoots from *i i i* being kept as a reserve.

PROPAGATION BY COILING IN POTS.

The vine is usually propagated by cuttings, by single eyes, and by layers; also by grafting, either by detached scions, by approach, that is, inarching, or by budding, which are all appropriate in their places; but for the sake of expedition in the pot culture, I have, during several years, practised propagation by coiling portions of shoots, of various lengths, into pots, horizontally and spirally, instead of planting them vertically. The advantage of this method is, that the coiling gives


b.
b.
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A.

them a disposition to emit roots more freely as well as more abundantly, than any other method which I have observed. By this method a stock of plants for pots are expeditiously raised, and kept up with greater facility than by any other; were it not for this manifest advantage, I should not set so much store by it, but to those amateurs who are fond of the grape in the highest state of perfection and who delight in the manual operations of the vine, the pot culture is certainly one of the most pleasing branches of the horticultural art; and that system is assuredly the best which gives the produce in the least possible time, whilst it adds to the pleasure and delight of the operator.

I have generally used cuttings of one year old; but I have also coiled pieces of two years old wood, which have made some fine rods the same season. These emit a greater abundance of vigorous roots, and at the same time contain a greater reservoir of food for the young shoots, which start off vigorously and grow luxuriantly. Such cuttings require to be denuded, carefully, of all warty excrescences that are likely to throw up suckers, retaining those only that are near the upper end of the cutting. From such cuttings several shoots will often spring from one knob or excrescence; but when they are two or three inches above the soil, I carefully remove it, till I reach the place where they spring from, when I make a selection of the best (that is, supposing it to be the best placed) upon the coil, or else I choose the most robust, destroying all the others.

I have found, by various experiments, that too great a length of cutting, although it produces the greatest mass of roots, is not the most convenient for the purpose of shifting; from ten to twelve inches of sound short-jointed wood is the best, as it can be easily coiled into small pots at first, and admits of three or four shiftings, without being obliged to use too large and cumbrous a pot at the final remove.

Frequent shifting is required, and great care taken never to over-pot (a caution that is also necessary to get fine cockscombs and balsams), for by so doing great vigour is excited.

In preparing the cutting, if it be of young year-old wood, cut off all the buds but the uppermost, and ply the root round the leg, below the cap of the knee, till it be found readily to coil into a small pot without danger of breaking. In placing it into the pot, it is of importance that the bud left at the apex be so placed as to be the most elevated portion of the coiled shoot, and yet so depressed as to be about two inches under the soil, for the shoot will then spring up much stronger than when the bud is placed nearer to the surface (the same remark will apply to single eyes). At the same time the coil should be so placed that the roots may have plenty of pot-room *beneath* their base, so as to accumulate to some extent before they are obliged to traverse and ascend into the upper portion of the soil; consequently, a set of long narrow pots is best for the vine culture, as the roots are always, or nearly so, in contact with the side of the pot, which is of great importance to

the health of the plant; this form also admits of the bud, at first coiling, being placed sufficiently deep in the soil, besides affording plenty of space for the roots, which will become very strong and capable of stimulating the young shoot powerfully before it rises above the surface. My object being to get my vines as strong as I can during the first season, great length of rod is not required; from four to five feet is indeed quite sufficient, if single rods are contemplated. In coiling the long cutting described above, numerous spongioles are brought into contact with the side of the pot, and thus a vigour is induced that cannot be excited by any other means. It is to be observed that a well-baked pot is greatly preferable to a box, or any other sort of vessel whatever; for it appears that there is something in the texture of a pot which is suitable to the vine as it is to most other plants, and very congenial to its roots.

Layers of the desirable kinds are not always readily to be procured, but cuttings may even come from abroad, and yet be brought to bear fruit easily in the following season; this can very rarely be accomplished by taking the cutting in the usual way, or by the single eye.

I have generally put in my rootless cuttings from about the middle of January till the end of March, beginning to excite the coiled cuttings into action by plunging them at *once* into a hot-bed, between 90° to 100°, where they remain till it is found that they require more pot-room; they are then shifted, and placed on a back flue, or on some other convenient and suitable situation for the early crop.

I begin to excite my shoots in November, continuing a succession in December; these will produce fruit in April and May.

I have stated that the cuttings will require repeated shiftings, but long before the first removal to a larger pot, the young shoot, (if every thing has gone on prosperously), will have made considerable progress, and require some minute attention; thus, (and this and the coiling only is the art), as soon as the shoot shall have risen a few inches above the soil, its top must be pinched off, and as the first laterals or side shoots appear, they must also be displaced. It is my object to excite the main eye at the apex of the growing shoot, therefore when this eye breaks, the shoot from it is to be led upright, or as nearly so as may be, till it reach the length of seven, eight, or ten joints, according to its vigour; when the top is to be pinched off. After this stopping, the first laterals are to be displaced as they appear; and at this stage, if the vines have done well, many will be excited at two or three of the eyes at the same time; and it is desirable that they should be so, as it shows a great degree of vigour; they are then to be cut down to the lowest excited eye, and none below that will stir subsequently; in this manner two great objects are secured, the vines are rendered stronger, and not an eye is lost. These single shoots are to be trained as above described, divesting them of all laterals and tendrils as they appear; I have thus, by the end of the season, had many vines of well ripened wood, which have girthed an inch and a quarter to an inch and a half; furnished with fine

bold fruit eyes. If those strong vines be excited by heading them down early when in their greatest vigour, I have seen them bear fine and well matured grapes in the same season.

It is often found necessary, if the rods be not of the desired strength, to top them a third time, so as to get stronger shoots ere they have reached the destined length; I suffer none to reach a greater length than from four to six feet. When I have conducted the vines to the desired length, I pinch off the tops as before, and permit the uppermost lateral only to remain to carry off the remaining sap, stopping it by pinching off its top at the first leaf-joint. This treatment strengthens the wood, and renders the buds mature. If such vines be intended for early forcing, remove them at this stage to an airy but warm and sheltered situation in the open air, to give them a season of rest, wherein they may mature their wood till the leaves drop, when they should be headed down, one, two, or three joints, according to the state of the vine, as in the accompanying figure; and placed against a northern aspect till the cold weather set in. They should then be again removed to a more sheltered situation, and plunged so as to protect the roots from frost, which is a point that must be insisted upon; and in severe weather the

top of the pots must be carefully mulched, to protect the surface roots, and the rods covered to protect them also from the power of the frost; the necessity of this protection was proved in the inclement frost of 1838, when the mercury having declined to 2° below zero, a set of vines in pots standing under a thatched roof, in an open shed, the pots being covered with pea-haulm; yet every plant was injured, and six Muscadines nearly destroyed; all proving fruitless and inert.

The buds will become excited much more readily by being sometimes in gloom previous to being brought into the forcing department.

In the winter of 1839-40, another set remained all winter in a dark close outhouse, the soil covered with straw; being placed in a cold vinery, in March 1840, nearly every eye developed in a week, by the power of the sun only.

Plants so treated, when exposed again to a strong solar light, can be very successfully excited in the December of the same year (and even the beginning of November). I have introduced many such plants in December that have broke finely, and proved as vigorous as if they had not been introduced till March. Those vines which are not intended for early excitement must not be turned out too early to rest; or be so soon headed down as early vines; *neither must they be placed against a northern aspect, otherwise they will be excited even in their northern climate;* especially if they had been early introduced in the preceding season to the forcing department: thus they will become excitable early, even in October, provided they have

been put to rest, and pruned in July or August. No vine ought to be excited before October, towards the middle of the month, for the pots, and the latter end for borders, or else they will be worthless, owing to the absence of sun to mature them.

When potted vines are brought early into action, before the buds are in any condition excited, it will be necessary to place a wire, bent in the form of a wide expanded circle, from one side of the pot to the other, both its ends running down in the inside of the pot; it must rise above the pot sufficiently high to admit the whole length of the rod, when tied round the bow; its apex being brought round so as nearly to come in contact with the soil in the pot, as in *fig.* 2, it should then remain tied in this position till all the buds be found to break regularly, when the rod should be untied, and the shoot fastened either to an upright stake, placed for the purpose at one side of the pot, as in *fig.* 3, p. 62; or tied to a sloping trellis, to prevent evaporation and encourage roots, wrap it up neatly but loosely with moss, taking care to keep it constantly moist till the grapes are set, then clear off the moss and roots, and encourage those roots in the pots by proper warmth and shifting, placing them in bottom heat till the grapes are set, the quantity of

2.

which will be governed by the size of the pot, and the quality of the vine (*see fig.* 4, *with its crop on*, p. 63).

5.

It is of considerable consequence to be able to have good and well matured grapes through the months of March and April, which just fill up a season; that critical period between the final consumption of the old grapes, and the usual season for the new grapes to come in for the table; for at that season all fruits are scarce, and yet are much required in all families.

Those poted plants that are put to rest early in May, and pruned as soon as the leaves drop, will be excitable even against a northern aspect by the beginning of November, and if they be then placed in the forcing department, will soon show abundance of fruit. If strict attention be paid to the foregoing rules, as fine and perfect grapes can be produced in March as at any other period of the year, if there is a tolerable duration of bright weather, and plenty of air given.

Vines which have thus been fruited at an early season must not be turned out, or pruned, for some time after the fruit is cut, otherwise they will, as I have stated, be excited too early to be made available, and consequently will become useless; or at

least not worth the room, time, and attention, which it would be necessary to bestow upon them; the fruit which they would produce at so dead a period of the year would only be fit for tarts. All those that are excited before, or even early in October, are too forward to be useful, and are best thrown away; therefore it is of importance, if any of those kinds are favourites, or are scarce in the collection, to attend to this rule; grapes cannot be matured, even so good as the trash which is imported in the months of January and February; for our solar power in this climate is not sufficient to convert the acid principle to saccharine matter, so as either to render them palatable or wholesome, unless it be in pastry; therefore a few vines only should be introduced towards the end of October, and at intervals through the month of November, unless there be very ample convenience for the purpose. Throughout the month of December most sorts will succeed very well, and may be introduced freely; they will supply the table plentifully through the months of May, June, and July, when the general crop comes in on the rafters, grown generally in diffused borders.

EXPEDITIOUS CULTURE BY THE COILING SYSTEM.

The process of introducing a shoot, or, more correctly, a branch of a grape-vine, to fruit the same season, is a novel and very interesting practice; and, by a judicious attention to certain rules, is equally simple and certain, particularly if the branches are properly selected.

The engraving represents a branch, eight feet long, from the rafters, after it has borne its crop the same season, denuded of all the spurs which had borne fruit. In the next engraving is represented the same rod, cut out at the spur, and after it had made the shoot *d* to supply its place. This rod is again represented at p. 66, coiled in a 14 inch pot, and trained to a stake loosely covered with moss, for the purpose of keeping the root and stem moist.

The small fruiting varieties are the most certain; but I have had very fine fruit from the black Damascus, the Muscat of Alexandria, and the black Tripoli, in the first season.

In selecting my branches for this purpose, I choose those that

run from 12 to 15 feet long, but whose tops are full of fruit-spurs, from which a crop of grapes has already been cut. In vol. iv., p. 35, of the "Horticultural Transactions," the reader may perceive the very easy and regular method by which I procured these, from 1805 till 1828, and from which I never failed to have excellent crops of fine grapes. But the coiling system never struck me during that period, consequently my spare branches were thrown away. I take eight feet of good wood, full of fruit-spurs at the top, and eight feet below of two-years old wood for coiling, just of the right age to produce an abundance of roots, already as certain to produce and support a crop of grapes as when they were attached to the mother plant.

The part that is to be coiled should not be above two years old, otherwise it will not emit roots so freely and abundantly as at that age, and consequently the crop will be less certain. I never could succeed in securing a crop from wood, the coil of which was but one year old.

Previous to the coiling process, all excrescences likely to throw up suckers must

be cut off; for if they are suffered to remain, underground suckers would spring up from them, which would frustrate the intended object by diverting the sap from the main rod. The accompanying engraving represents the branch formerly described, now coiled into a fourteen inch pot, trained to a stake; the shade represents loose moss laid round the stem when placed in bottom heat for forcing; they never succeed unless treated so.

F.

Begin to introduce the coiled branches into a bottom heat AT ONCE, of from 90° to 100°, from the middle of February to the middle of March; success is not so certain if they are brought into action earlier or later. They must not be removed from the bottom temperature until the grapes be set; after that period they are perfectly safe, and will then do better by being removed from the bottom heat, and placed upon a convenient curb, backshelf, or flue. I must repeat here, that those rootless coiled branches, however judiciously treated in other respects, will do no good, unless the stems between the fruit-spurs, and down to the surface of the soil, be *loosely* wrapped with moss; which must be kept constantly moist by being sprinkled with water from the hothouse

cistern, morning and evening, until the fruit be set; when the moss and matted roots in it should be taken clean off, and the pots placed, as previously directed, to mature the fruit.

The important process of mossing the stems must not to be dispensed with, if a successful result be anticipated during the first season; by being kept moist, evaporation is prevented during the first stage, when the flow of the sap must be feeble, and the emission of roots all over the entire stem is encouraged,—a process which assists in the general economy. Besides, the stem is thereby kept several degrees lower in temperature than the surrounding medium, and thus the fruit-buds are retarded, until many roots are emitted, of considerable length, and quite sufficient to secure the crop.

I am not aware that the system is practised by others, but, in the pot-culture of grapes, I deem it an affair of considerable importance to be able to produce very fine grapes, even in the month of March, and *generally* in April, a period, as previously stated, that fills up the void which occurs between the consumption of the old grapes of the former year, and the commencement of the new; and when most fruits are scarce and costly.

I have stated, that I begin to excite my early pots of vines in November and December, and these will produce ripe grapes in April and May; those vines are removed out of the forcing-house as soon as the grapes are cut from them, immediately pruned, and placed on a northern aspect, if it is intended to excite them early again; and they will

be breaking regularly and strong early in October, when they must be taken into the forcing department, and in a short time they will show fruit, whereby with judicious attention, fine and well-matured grapes will be ready for the table in March. It is of much importance at this dull season, previous to the vines being placed on the flue of the back-wall of the stove, which is always the best situation for them, that it be made as white with a *quick*-lime wash as possible; and that nothing shall be trained to that part of the roof which can in any way obstruct the sun's rays from darting directly upon it through the glass.

The vines, also, must be as near to the glass as circumstances will permit. At any other season it is not of so much importance; although at any season I like the leaves to be near to the glass *roof;* that is, within from three to six inches, yet be never allowed to touch it.

In most hot-houses the vines are placed too near the glass; and the consequence is, the leaves which accompany the fruit are scorched, or are so much injured, that they very rarely bring the fruit to perfection; they are also much more subject to the attacks of the red-spider and the thrips, than if at a fair distance off the glass. Dry sulphur, finely puffed upon the parts affected, is a sure and safe way of getting rid of those pests of the vine. The old elastic leather powder-puff, with a coiled wire-spring, known when gentlemen wore hair-powder, is the best instrument that can be used; but the late talented and much-esteemed President of the London Horticultural Society

(T. A. Knight, Esq.), who first discovered the important effect of dry sulphur, blown finely upon these little enemies to the gardener, and upon the perfectly dry leaves, which has the effect of sending them off, as if by a shake of the magic *wand;* contrived a bellows, to which he gave the preference instead of the spring-puff; it is nothing different from the old fumigating bellows, only instead of the pipe it has a *flat* lid, like the top of a pepper-box or a flour-dredger, and is finely perforated with holes for the free escape of the sulphur; to keep it from clogging the holes, the top ends of the wing feathers of a hen or pigeon should be placed in the inside of the sulphur-box, the tops of them towards the bellows, as the sulphur clogs the farther turn the box occasionally round, and the feathers will open, and allow a vent for the sulphur to escape in a fine dust, if it has been well dried and finely rubbed down. There must be a valve in the pipe to open towards the sulphur-box, and to close at each inflation of the bellows, to keep out the sulphur from the inside of it; consequently there must be a joint at that part where the small leather flap, or valve, is placed, or else a bridled valve at the end of the box next the bellows. The bellows has no occasion to be above half the size of the common parlour bellows, and with its appendages in proportion. Amongst extensive ranges of hot-houses I have found Mr. Knight's bellows the most convenient for a wholesale way of executing much in the least space of time.

One other remark remains to be made; al-

though geraniums and many other species of plants will grow luxuriantly when planted in pots of live moss, I have never heard of grape vines being grown in this way till I tried it at Welbeck Abbey, where, previous to my leaving the service of the Duke of Portland, I had practised the system during two years, and found that the vines grew luxuriantly under it; I am therefore persuaded, by facts resulting from attentive experience, that grapes can be grown well in pots of moss, used immediately after it is gathered from the woods; and if gathered previously, for some length of time, the difference will be immaterial. It is frequently necessary to re-arrange pots in stoves, to suit a combination of circumstances, which cannot always be foreseen; therefore a material so light in itself renders the operation of removal far more convenient than if the pots were filled with heavy earth; there is also far less danger of over-saturation, because the moss permits all surplus water to pass away freely. Soil, on the contrary, becomes sodden, and causes the plants to deteriorate and to become diseased, unless they are under the care of a very cautious and judicious gardener.

ROUTINE CULTURE OF ESTABLISHED VINES IN POTS.

As the details of propagation and of soil are now disposed of, I shall presume that vines are established, and in readiness for their winter dressing. If they have been prepared for, and are intended to bear upon spurs, cut them down to a

second or a third eye; or to the *best* and *boldest* eye upon the spur; *which I certainly would prefer in general culture.* The third eye is generally the best and surest to cut at; but the state of the vine must guide the operator in his use of the knife. If a bolder eye be found at the fourth or at the fifth joint, I should rather cut off above *it*, than hazard a less promising lower bud.

If the wood consist of one lengthened cane (that is, of a single root) from one inch and a quarter circumference, with good plump *buds* upon it; head such to any convenient length, according to the size of the pot, or to the place the vines are intended to occupy; and if the directions which I give under their proper head be attended to, these buds will produce abundance of fruit, and mature it to high perfection; but it must be borne in mind, in conformity with the principle upon which fertility depends, and which experience confirms,—*this rod must have sprung from the eye of a shoot made the previous season, or from a bud prepared in the former summer.* It is upon this principle that spur-eyes are strongly recommended by Mr. Trory, of Norfolk, and others. A spur-eye consists of a strong year-old shoot, cut back to one single strong bud; the shoot itself proceeding from, and retaining a little piece of still older wood—say, two or more years.

Any shoots which spring *directly* from the old wood, are what Nicol calls "*water*-shoots," and these he directs to be rubbed off, as they invariably become barren, as indeed every shoot does, unless it arises from a *previously* prepared bud.

But the certain method to make the water-shoots become fructiferous (if it be desirable to retain them with the view to produce fruit the following season) is, to pinch off their tops, after they have shot up a foot or eighteen inches, at the second, third, or fourth eye, and induce one, or if possible, all those eyes to break (and which they frequently will do, provided the vine be luxuriant), then to cut back to the lowermost of the excited eyes, and train the shoot from it to eight or ten feet, according to its vigour. Having stopped this selected shoot, the sap is of course diverted, and tends to swell the main eyes of the rod.

Place the pots of fruiting vines in the forcing department, as required; and when they show fruit, leave from six to thirty-six bunches, according to the sort, size of pot, and the state of the vine (this is in reference to long-established plants). Stop, as is usual, at the joint next above the fruit; although I have been in the habit, for many years, of stopping my vines at the bunch instead of the joint next above it, and then, in the usual manner, permitting the sap to expend itself by the lateral, and its secondaries, as the vigour of the vine may indicate. By such treatment, the vine is divested of all incumbrances, and the grapes do as well, or better, if the leaf that accompanies the bunch, on the opposite side of the shoot, be retained perfect, and neither too near to, or at too great a distance from the glass. I must again repeat, as a condition of the last importance, that success depends a great deal upon the economising the sap, so that it be not wasted

upon useless wood; or by stopping the shoots without discrimination, hazard the bursting of the buds intended for future fruit.

Shoots that it is found necessary to divest of their fruit, or shoots selected in places where spurs are required for use in the following season, are to be treated through the summer as those which bear the fruit; for much of the art lies in a judicious attention to this economical stopping, as has already been insisted on.

When the berries begin to swell rapidly, the gardener's chief attention to the wood is over, as the great luxuriance will then cease; and the elaborated juices will be diverted into another channel, and appropriated to the swelling off, and maturation of the fruit.

SITUATION AND SOLAR INFLUENCE.

One of the chief causes of failure is inattention to the situation in which the pots of vines are placed, when they are first taken into the forcing department; and more especially if that be at an early period of the year or in dull weather. They are very frequently placed, either at too great a distance from the glass, where the rays of light are intercepted, or if near, are placed too much under the shadow of some plant. If the wood be grown in such situations, it cannot be perfectly matured; consequently its fructiferous powers are uncertain. The certainty of a successful issue depends upon the vines being placed *at once*, at the farthest within *a yard* or even *eighteen inches*

of the glass roof; but so that the leaves may never come within *three or four inches* of the glass.

Crops of grapes are too frequently spoiled, or much injured, by permitting the leaves, especially those that accompany each bunch, to touch the glass; nothing should be in the way to prevent those important leaves from having all the power of solar influence upon the *upper* surface, as the size and quality of the fruit depend much upon the preservation of those leaves; and their situation, both as regards light and atmospheric air.

WATERING.

Another principal cause of failure in the pot culture of the vine, is too frequently the want of a judicious attention to the watering. I can never admit that it is a good practice *to place bottom pans under the pots;* — even without them I rarely find it necessary to water more than *once* a day; and not even then, unless it be obvious to the *experienced* eye that they stand in need of water. When they are in a growing state this is readily ascertained by a slight degree of flaccidity of the leaves, and of the ends of the shoots. I have thus a pretty certain criterion to guide me; and, according to the state of the vine, I know that I can give a plentiful supply of water without injury. If the weather be hot, with much sunshine, and the vines are in a vigorous state of growth, I pour water on the soil, not only to saturation, but till it flow copiously from the bottom of the pot. As the grapes approach to, and are in the last stage of

swelling, they, at that period, take up much and require it, but never until they show indication of being in *reality*, in want of it; otherwise the roots become sodden, the fruit ripens prematurely, its condition is imperfect, and its flavour vapid. The watering of a plant may appear to the uninitiated a simple process, but in the case of a fruit-bearing shrub or tree, in a pot, it is by no means so; and few can practise it judiciously. Even with a great degree of experience, watering may deceive; for if it flow from the hole, the soil may still be dry in the centre, therefore the state of the whole ball must always be cautiously watched, and kept in a due state as to moisture. When the grapes show some degree of transparency, and the dark varieties begin to change colour, less water must be applied, and a less degree of humidity in the house, if that can be avoided. As they approach towards maturity, caution in the application of water is of great importance if *high-flavoured* fruit is to be obtained. An equal degree of care must likewise be observed in watering, from the time that the vines are taken in to force until a considerable degree of luxuriance be obtained; for at those two periods, if great attention be not paid, the soil by being too repeatedly watered at a time when little moisture is required, becomes at once sodden and sour, and then both plant and fruit are rendered useless.

Many persons water at distant intervals in the course of the day; I, on the contrary, go from pot to pot *once a day*, and give each water as the soil will take it. At that time I can very correctly judge what each pot requires, and I give it. My

objection to bottom pans is this: the watering is generally too much for the gardener to attend to himself where extensive forcing goes on, consequently the waterings must be left to those who have often but little judgment, and as little interest in such matters, and hence the vines are at times but slightly watered, when a good soaking is required, and at others the bottom pans are not allowed to be empty for a month; that fecal exudation which ought to be carried off is retained, and the roots remain immersed in what they have ejected. No person can do justice to the vine in any state, unless he has from long and attentive practice and minute observation made himself well acquainted with its habits, and its fruit-bearing powers; and much depends upon those whose province it is *regularly* to attend to the watering. One careful person *alone* should attend to this process for the season at least. If I find that any of the pots do not require it, I have withheld it sometimes for a whole week, and indeed until I saw that it really stood in need of it. If this practice be attended to in all its particulars, finely swelled and perfectly matured fruit can be obtained, which will vie, in respect to flavour, with any that can be produced in this country; the wood also will be completely ripened for the following season, if the vine be not over-cropped.

A judicious attention to watering is even of greater importance than the soil in which the vines are planted; few persons would plant them in a known bad soil, especially in one that is naturally stiff and binding, but a great and serious error may be easily committed in watering the vine.

I once grew several vines in pots for eight years: the vines had been planted for four years previous to potting them, in the rich border of a grapery that I was pulling down, and were two years old when planted there. In taking them up for potting I sacrificed as few of their roots as possible; and I wound or coiled each of them round the inside of pots of only fourteen inches diameter, so that the pots were more than half-filled with roots. I shook in amongst the roots some good compost, such as I was in the habit of using for my pine plants, and then pressed the whole compactly together, it being very dry and mellow at the time. During the eight years they were neither removed from the same pots, nor had they any fresh soil; *liquid manure*, of the kind usually so called, was never used; but they were watered with that fluid aliment which their roots were prepared to imbibe in sufficient quantity as they required it, *i. e.* with water taken from a large pond, supplied by surface-water alone, and what had filtrated or percolated through the herbage of a rich park, and in nearly a clear state.

It may be of importance to some to state, that for many years I have been induced to give the preference to such water when it could conveniently be obtained, for many of my garden purposes, but more especially for plants in pots. In 1833, I had occasion to notice it in Paxton's Horticultural Register, vol. ii. page 490. I shall here quote the passage referred to, with some trifling alteration, in order to make my meaning more perspicuous to some readers, as I am desirous that amateurs,

as well as young gardeners, may clearly understand me, and be thus induced to investigate what the real food of plants is.

"The vines were watered, as required, with soft pond-water; such as is supplied from the watering, or floating of meadows. This, after it has passed off, retains, in solution, *and in its most limpid state*, all the food that most plants require; and is indeed only such food as they are capable of taking up by their alburnous extremities *, and of digesting, or duly assimilating. It is well known to the physiologist that vegetables have more or less of silicious matter, or flint, in their substance; but it exists in particles so minute as to be dissolved or suspended in the soft water to which I have alluded, and may be of the utmost importance to the vegetable economy; perhaps as necessary to their well-being as gravel and calcareous matter are to many of the feathered tribe.

"It is obvious that water, in its meanderings over the fertilising surface of meadows and whilst depositing its grosser sediment as it filtrates through the herbage, takes up in its progress all the food that most of our potted plants require;—it becomes strongly impregnated with fertilising matter in the earth's *surface*, and with various gases evolved during the process of that decomposition which is going on near the surface. With water of this

* Such, at least, was the opinion of the late President of the London Horticultural Society, Thomas Andrew Knight, Esq. That eminent physiologist appears to have doubted the correctness of the usually received opinion, that it is by the spongioles of the roots that plants absorb their nutriment.

description I supplied my vines, at Shobdon Court, plentifully; but only once a day, and then not unless they appeared to stand in need of it; which was manifested by the vines inclining to flag from the lack of moisture and nutrition. This flagging affords a sure criterion, and, if not suffered to go too far, the plant is the more healthy for it; and I know then that I can give them a plentiful supply without danger. In the last stage of swelling they take up much water, and, if judiciously applied, they will then swell off to a fine size; provided plenty of air be judiciously given to them, and a due vapour be kept up whilst the house is closed."

It may be of importance to remark in this place, that, if a vine of large size be taken up from the ground, and potted just before it is taken into the forcing department—and placed at *once* into a *high* temperature, at the minimum of 70°, a fine crop may be obtained. I have thus succeeded well with even old vines, taken up, and the roots literally crammed carefully into comparatively small pots; they all proved very fruitful, the berries very large, and the bunches of a good size.

There are many important papers upon the culture of the vine in the Transactions of the London Horticultural Society, in Loudon's Gardeners' Magazine, and in Paxton's Horticultural Register; and, at the end of this small treatise, I shall point out such papers amongst them as I consider likely to be of the most importance to those who are ambitious to excel in cultivating the grape-vine.

It is of the greatest consequence that a judicious attention be paid to this important object, at all times, whilst the vines are in progress of forcing; the lights, during the middle of a fine day, if the season permit, should be nearly taken off the roof, if that may be conveniently done; whether the sun shine or not, this should be done during fine warm rains, as it *much* promotes the swelling of the fruit, and improves its quality; but, at nearly the last stage, it is of the utmost importance. In early forcing, there is little chance of giving a sufficient ventilation with safety. *But even at that period*, it should be done, closing the house early in the afternoon. At bedtime admit a circulation, if possible, of *night* air; and rather keep up the desired temperature by a little extra fire-heat than lose the advantage of admitting atmospheric air by night; it is one of the chief elements of vegetable life, and is far too little attended to. Early in the morning close up the house, only allowing sufficient space *at the top,* to permit the escape of the condensing vapour that accumulates as the day dawns, and *the morning sun advances* to pass off freely; as much of the evil so frequently complained of about bad colour, vapid fruit, spotting, shanking, and premature shrivelling arises more from a want of due attention herein than

from any other cause. Grapes, judiciously managed in pots, are always exempt from such misfortunes, if proper ventilation be given.

When the thermometer indicates between 70° and 80° give more air; and as the day advances, and becomes more or less hot, give air by degrees at two, three, or four intervals; until the house or pit be exposed to as much atmospheric air as shall be consistent with safety, and the convenience of the machinery.

I have always found muscats and the Black damascus set best when the house has been kept more close, warm, and humid during that period.

In 1811, when I lived with Lord Bateman, I had a large green-house and orangery that required an effectual repair; at one end of it there was a very old black Hamburgh vine planted on the outside, but trained up the roof on the inside of the house. This vine had never failed in producing a large crop of fruit for many years; it occupied nearly two of the lights in breadth, and the entire length of a twenty feet roof. The lights of the roof were all fixed, so that no ventilation had ever been admitted by them; but the house could be opened all along a tolerably deep front. I always thinned both the bunches and the berries well, and left only what I considered a proper portion of them on the vine; yet I could never colour them well, as they were watery and insipid, especially towards the top of the rafters. Being used as a summer green-house for balsams, &c., it had all the ventilation that could be conveniently given at the time. As all the lights were obliged

to be removed, for the convenience of a thorough repair, from off the roof, I anticipated no crop of grapes from my vine; but, in order to give it every possible chance, I did not strip the roof until the grapes were just set; at which stage I was obliged to expose the vine entirely, though till then it had never been exposed before for nearly thirty years. The weather at the time was beautifully fine, and continued so for six weeks, at which period the lights were again placed on the roof; and I had the principal sash at the top over the vine made moveable, so as to enable me to slide it down four feet whenever I found it necessary to do so. When I removed the sashes from the roof I contemplated shading the foliage from the sun through the scorching heat of the day, but, fortunately for me, it continued dull with warm showers for nearly a week afterwards; and therefore I had only the necessary precaution of laying some mats over them for a few nights, until they had become a little hardened and inured to the external air. The leaves grown under the glass soon changed to a reddish brown colour, but not one of them was in the least injured: and those leaves which it produced afterwards were most luxuriant, and of a beautiful light green when compared with the leaves produced under the lights of the vinery. The progress which the grapes made astonished and delighted me; it gave me a new idea in the art of forcing, and proved to me the importance of the *whole* of the atmospheric air towards the successful management of vegetation if a congenial climate can be maintained; and

by attending to the foregoing remarks it may be obtained as well as it can be in our climate. I could discern the progress which the grapes made daily, although there was nothing to reflect heat from beneath them but a very distant naked stage, and they were but triflingly influenced from the back wall. I took no small degree of pride, as well as pleasure, in attending to their necessary regulations the first thing in the morning, and the last in the evening; I also pointed it out amongst many others under my charge to all visiters; and induced many to take a greater interest in the cultivation of the vine, from the interest attached to this one.

The fruit swelled off considerably larger than it had ever been known to do before; and nothing whatever had been applied to the roots of the vine, which had been originally planted in the natural soil of the garden which was not by any means a good one; and there was not more than from a foot to eighteen inches of it, such as it was, lying upon a slaty, yellowish argillaceous rock, most retentive of moisture. The grapes, when ripe, were highly coloured, and with as fine a bloom as I ever saw upon any Hamburgh grapes; they remained plump and good upon the vine till nearly Christmas, although the house was filled with large orange trees, growing in very large heavy tubs that required the strength of two men with poles to remove them; the atmosphere of the house was thereby rendered very humid, and consequently exposed to a constant current of cold atmospheric air;—the front was only closed in frosty weather,

just to keep the frost out; and I never lighted fires but in very inclement nights.

The fruit was pronounced excellent; and I believe was as perfect in every way as it could be produced on any diffused border.

It may prove of importance to remark, that although I retained this vine for several years afterwards in the house (until, indeed, finding that it became injurious to some fine orange trees that must winter beneath it, I found it necessary to remove it), the berries never swelled to so fine a size and colour as in the season when grown and swelled in the full influence of the external atmosphere, and the *direct* influence of solar light; by giving it the advantage of top ventilation, the size, colour, and flavour were considerably improved. I account for the great difference in size, colour, and deficiency of flavour, from the absence of direct solar light; the house having been built nearly eighty years, and being then glazed with the Stourbridge green glass, which from age had become much tarnished, exhibiting all the colours of the peacock's tail, as in those days any glass was considered sufficiently good for such structures; yet where expensive plate glass has been used for such purposes, I have never been able to perceive its advantage over good *best seconds* window glass.

PRUNING.

If all the other operations are judiciously and punctually performed, I consider that the winter pruning of the vine becomes one of its *simplest*

operations, and may be performed very successfully by any one in the least acquainted with its fructiferous powers; and as I am very desirous of compressing this short treatise as much as possible, for the accommodation of young men whose circumstances cannot afford them the means of purchasing expensive books upon their first commencing their gardening avocations, I shall only remark in this place that there are three principal methods of pruning vines judiciously, and these three are all of the simplest kind,—*i. e.* by the long cane, or successional method, successfully practised by myself in one large grapery at Shobden Court for many years;—the long spur method, usually practised, and which I have witnessed most scientifically performed by Mr. Minnett, late gardener at Berick House, near Shrewsbury, and by Mr. James Corbett, the steward at Downton Castle, the residence of the widow of the late talented President of the London Horticultural Society;—the short spur system was the practice of Mr. Griffen, at Woodhall, in Hertfordshire, and of the late Mr. Andrews, at Vauxhall, and produced very fine crops of grapes. The long cane system is by cutting the rods at five, six, or eight feet long; the long spur system is by cutting at any convenient short length, wherever the finest bud is, whether at a second, a third, or a fourth bud, which is always a safe and a very simple plan for the inexperienced to pursue. I must, however, confine my remarks to pruning in the pot culture, which is a combination of the long cane and long spur system, and is probably

both the simplest and the most certain to the uninitiated.

"The operation of pruning," Mr. Towers observes, in his "Domestic Gardener's Manual" "and training are closely united; they go hand in hand with one another, for when a tree is trained, it is or has been pruned, in order to prepare it for the situation which it is to occupy. But though the two operations are but one in respect to time, they each effect different objects, and are followed by different results; by the one, we curtail the bulk and extent of a tree; by the other, we regulate its position."

THE OBJECTS OF PRUNING are "the promoting growth, lessening bulk, and modifying form, promoting the formation of blossom-buds, enlarging fruit, adjusting the stem and branches to the roots, renewal of the decayed parts of trees, and removal or cure of diseases. Pruning is doubtless productive of very important consequences, but these, I think, have in many cases been misunderstood, for it has generally been supposed that pruning promotes growth in trees. That this is an error, may, I conceive, be readily demonstrated; for as every bud and twig has a vital function to perform, it follows that as far as regards the *vital principle* of the tree, we do anything but strengthen it by lopping and cutting with the bill and pruning-knife. By pruning and training we indeed *educate* the tree, and make it subservient to our will; we place it in an unnatural position, spread it abroad, expand and depress its boughs and branches, nay, we produce an appearance of growth and expansion

of parts by the operation of the knife, for we compel nature to make attempts at self-preservation by a precocious development of those buds, which for a time, or even a long period of years, might otherwise remain dormant in the stems; but all these are processes of exhaustion and not of energy. The consequences prove this to be fact, because *fertility* is the invariable result, and fruit-bearing is the constant attendant upon, as well as the certain effect of, whatever tends to check vigorous or luxuriant growth. We gain fruit, but abate the *vis vitæ*, we induce precocity, but shorten life; hence I consider loppings and prunings of every kind to be injurious, where duration of life and bulk of timber are the objects. Let us not mislead our judgments but rather acknowledge facts; a tree is not benefited by prunings, but its *fertility*—the final object of its being—is doubtless accelerated; and therefore whenever we prune or disbud fruit-bearing trees, we do it expressly to obtain fruit-buds within certain prescribed limits, and we gain our ends; but let us not be so unphilosophical as to suppose that we thereby improve the strength and vitality of the tree."

In thinning the berries in pots, I begin earlier than is usually done with grapes growing on diffused borders, although in thinning all grapes we cannot begin too soon after they are safely set, and thin at three, and some sorts four, different times, thinning mostly from the *inside* of the bunch, and only keeping the outside berries from pressing too close upon one another; or else the size of the bunches is reduced. Tie up the

shoulder bunches, as it appears obvious that they press upon those beneath, and then it requires to be done judiciously; no part of the stem of those shoulders must be drawn up so as to be above the base where it joins the parent stem, which is too often done without considering the evil arising from such an act; those shoulders, if so treated never swell off so fine as when tied so as to *incline downwards* from their base, indeed the whole bunch looks much better trained in this way.

CONCLUSION.

In preparing this little work for the press, I have endeavoured to express myself in a way, which could not be misunderstood, even by the gardener or amateur, for whom chiefly it is intended. The subject of SOILS, FOOD, and WATER, as well as the judicious application of ATMOSPHERIC AIR, as much on account of maturing the wood and the buds, as for the successful maturation of the fruit; I have tried to make perfectly clear, but to prevent the possibility of my being misunderstood, I repeat my practice here in a few words. If I want grapes fit for the table early in March, I excite the earliest kinds in the beginning of October; if ripe grapes are not required until April, then the first or second week of November will be time enough; if not required before May, I should not excite my vines before December; and if ripe grapes be not wanted until

June, I should introduce many, if required, and I had the convenience, between Christmas, and the first of January; always bearingin mind that, in the dead part of the forcing season, from October until March, it takes five months to mature the grapes perfectly; but if for the table of those who must have them with a very slight degree of ascidity in them, they must be then dead ripe, and therefore cannot be gotten into that state in a shorter period than six months; I have also been very particular in describing the method, and the importance of bowing down all vines that are early introduced, or whose buds are not all previously excited before they are introduced into the forcing-house; so that the lowermost buds be equally excited with those towards the apex, which would very seldom be the case; especially on vines that had not been early excited the previous year, if the bowing of the shoots were not resorted to. When all the shoots have been freely excited, they may be tied either to an upright stake, or into an inclining, or a horizontal position, as it may be most suitable for the place intended for them.

But, where grapes are not required at an early season, then, that season is the best,

> "When kind Nature wakes her genial power,
> Suckles each herb, and spreads out ev'ry flower!"

from the middle of February, to the middle of March. All nature, at this period, lends its stimulating powers; and leaves an easy, and a most pleasing employment for the ingenuity of man; for the finest grapes are always produced from

vines that are brought into action about that period, if a judicious attention be always paid to the general rules which I have laid down relative to soil, water, light, and judicious ventilation.

One other most important point in my management, and upon which I have laid great stress, and therefore I have been the more elaborate; on the method of stopping the growing main shoots judiciously; as much of the success, in the pot culture, depends upon this process.

With regard to vines upon the coiling system; from Christmas to the beginning of January, is the best season to introduce them to the stove; and those answer the purpose best for coilers that had been cut off vines that had not been excited before the middle of February, of the same year; for if the buds are not sometime dormant after they are plunged into the hot-bed, so as to allow many rootlets to be formed before the buds become much excited, they will be certain to miscarry; on this account it is of the utmost importance that the vines be placed at once in the bottom-heat of the stove, in this most dormant state, and there to remain until the grapes are set, or else roots cannot possibly be sufficiently excited by the time that the buds burst, so as to ensure a successful issue. The whole process, until the grapes are set, requires the nicest attention, but yet occupies little of a man's time; and until some little practice in the art has been attained, a hundred may miscarry for one that will be successful.

ANALYTICAL LIST OF PAPERS ON THE VINE.

In Vol. II., p. 108, of the Hort. Trans. there is an excellent paper by the talented and enthusiastic horticulturist, John Williams, Esq., of Pitmaston, near Worcester, which should be read by all who are desirous of producing Grapes in the highest state of perfection.

In the same Vol., p. 184, there is an excellent paper on the importance of the leaves of plants—"On the Connexion between the Leaves and the Fruit, by Anthony Carlisle, Esq., F.H.S., &c.," showing the danger of losing the leaf that accompanies each bunch of grapes.

In the same Vol., p. 123, there is an interesting paper by Henry Seymour Mathews, Esq., F.H.S., upon making wine from the leaves of the Claret grape, &c.

In Vol. II., p. 130, see an important article by Thomas Andrew Knight, Esq., F.H.S., &c. &c., President, upon the ill effects of excessive heat in forcing-houses during the night.

And at p. 189, there is an important communication by the Rev. Jas. Venables, of Buckland Newton, Derbyshire.

Vol. 2. p. 224. Is an excellent paper by Thomas Andrew Knight, Esq., President, on the ventilation of forcing-houses; and at p. 327 he has another—"Observations of the Verdelho Grape."

In Vol, III., p. 95, Richard Arkwright, Esq., of Willersley, in Derbyshire, has an important paper on a method of retarding the ripening of grapes in hothouses, so as to obtain a supply of fruit during the winter season.

Vol. III., p. 334. An important paper is given by Mr. George Lowe, gardener to Charles Welstead, Esq., of Valentine's House, near Ilford, in Essex—giving an account of the vines there, with some practical suggestions for the treatment of vines. The vines there are the parent of the celebrated Hampton Court vine.

Vol. IV., p. 98. On the management of grapes in vineries, by Mr. William Griffin, gardener to Samuel Smith, Esq., F.H.S., at Woodhall, in Hertfordshire.

Vol. IV., p. 131. Mr. John Thompson's method of preserving grapes till a very late season, practised by him with success in the garden of Earl Cowper, at Panshanger, Hertfordshire.

Vol. IV., p. 143. John Braddock, Esq.'s grapes, exhibited at a meeting of the London Hort. Society, Jan. 18th, 1820.

Vol. IV., p. 246. Mr. John Mearns' method of managing vines in a common grapery, 1820.

Vol. IV., p. 363. Aster Marattand, Esq., of Woodbank, near Stockport, his account of grapes grown in pots there.

Vol. IV., p. 439. An interesting paper by T. A. Knight, Esq., upon the management of fruit-trees in pots, part of which I have transcribed in the body of this little work.

Vol. IV., p. 560. Mr. Buck exhibited pot vines, Oct. 3, 1820 ; important.

Vol. V. p. 471. Mr. Peter Lindegaard, gardener to His Majesty the King of Denmark, at the palace of Rosenberg —an excellent description of his method of forcing grapes, worth the attention of every horticulturist, as the method is an excellent one.

Vol. V. p. 484. Mr. Fleetwood's method of hastening the maturity of grapes upon open walls is stated, and is excellent.

Vol. V., p. 495. Mr. Beattie, gardener to the Earl of Mansfield, at Scone, near Perth, giving a description of the vinery there, and of his mode of training in it, with a plan of the house.

Vol. VI., p. 232. T. A. Knight, Esq.'s, account of obtaining very early crops of grapes.

Vol. VI., p. 437. Mr. John Street, gardener to the Honourable Mrs. Hamilton Nesbitt, of Beil, in East Lothian, gives an interesting account of his successful experiments in the cultivation of various plants in pots of moss.

Vol. VI., p. 454. The Rev. Blakley Cooper, A.M., gives an interesting account of a successful method of forcing grapes in borders, under glass, with a plan.

Vol. VII., p. 1. The description given there of an early and late grapery, by James Acon, the then gardener there,

never succeeded well, either for an early or a late crop; the plan was a bad one.

Vol. VII., p. 373. Mr. John Robertson, F.H.S., gives a very important account of the method of managing vines on open walks, at Thomery, near Fontainebleau.

Vol. XII., p. 17. On a new method of grafting, or budding vines, by M'Leich.

p. 244. On the cultivation of the vine under glass, by Wallace.

p. 248. Description and result of a suspended trellis, as a method for more forwarding grapes, by Charles Pullar.

p, 356. On a mode of producing two crops of grapes from the same vine in one year, by Waldron.

p. 537. On a mode of producing two crops of grapes in one house, in one year, by Y.

PAXTON'S HORTICULTURAL REGISTER.

Vol. I. p. 6. Description of a house for forcing vines in pots, by Stafford.

p. 337. An excellent paper, by Electricus, for young gardeners.

p. 341. An excellent extract, from a treatise on the cultivation of the vine, by C. Chaptal, communicated by J. T.

p. 487. On vines in pots, by Stafford.

p 536. On vines in pots, by J. Smith, Snelson.

p. 572. Representation and a description of spur-eyes, Stafford.

p. 607. A note on the preservation of grapes at Berlin, from the Trans. of the Caledonian Horticultural Society.

p. 657. On the propagation of vines, by M. Fintelmann.

p. 709. On the preservation of grapes for the table, through the winter; extracted from the Trans. of the Prussian Gardener's Society.

Vol. II. p. 13. On the pruning and culture of vines in greenhouses, by Brown.
p. 56. On forcing grapes the whole year, with a plan of the house, by Mathews.
p. 233. On vines grown in common hotbed frames, by Stafford.
p. 247. On the earliest period grapes can be brought to perfection, by Mathews.
p. 330 and 331. On vines in pots, &c., by Stafford, the conductor, and by M. D.
p. 350. On pot culture, by William Grey.
p. 465. On the culture of the vine, by J. Smith, Trans. Hort. Society.
p. 490. On the culture of vines in pots, by Mearns.
p. 497. On the culture of vines in pots, by Brown.
p. 519. On vines in pots, by M. G. S., and by Smith.
III. p. 32. Registers on the culture of the vine in America, by Mosaul.
p. 57. On the culture of the vine in pots, by Grey.
p. 97. Remarks on the culture of vines in pots, by the author of the Domestic Gardener's Manual.
p. 101. More on vines in pots, by Stafford.
p. 104 and 105. On the coiling system, by Mearns.
p. 203. On the culture of vines in pots, by Cherry and Stafford.
p. 206. On the premature shrivelling of grapes in forcing-houses, by J. D. Parkes.
p. 503. On the qualities of grapes.
Vol. IV. p. 169. On coiling of vines, by Mearns.
p. 315. An excellent article on the grape, by Rogers.
p. 326. On raising vines from single eyes.
p. 329. Remarks on the coiling system, by the editor.
p. 350. Inquiry about the defects of grapes, by Mills.
p. 361. Additional remarks on coiling vines, by Mearns.

p. 401. More additional remarks on coiling, by Mearns.
p. 403. Remarks on the editor's comments on coiling vines, by Fish.
p. 406. On the shrivelling of grapes, by Ayres.
Vol. V., p. 1. On the shrivelling of grapes, by Denyer.
p. 41. On the shrivelling of grapes, by Ayres.
p. 81. On the shanking of grapes, by Dale.
p. 125. On shrivelling of grapes, by R. G.
p. 241. More critical observations on the coiling system, by Philosophos.
p. 243. More on the shrivelling of grapes, by Denyer.
p. 281. More on the coiling system, by Mearns.
p. 323. On shanking of grapes, by Dale.
p. 328. On shanking, by A. L. A. T.
p. 401. More on the shrinking of grapes, by Stafford.
p. 441. On the impregnation of grapes, by cross impregnation.
p. 445. On shanking of grapes.

In Vol. II., p. 88, of Loudon's Gardeners' Magazine, there is an excellent paper upon the culture of vines in Poland and in Russia, which will be of importance to the young gardener.

And at p. 92 of the same Vol., there is an important paper upon the maturing of grapes in the open air, by Mr. T. Rivers.

Also at p. 100, there is a useful paper on the ripening of grapes on open west walls in Scotland.

Again, at p. 174, there is a very important paper, by Mr. Isaac Oldaker, upon keeping grapes through the winter, and pointing out West's St. Peter's, and the Poonah as the best yet discovered for that purpose.

At p. 190 see some very important remarks upon the grape vine, by Mr. Daniel Judd, and, most of all, his valuable hints on the importance of a judicious attention to atmospheric air, and a dry one at certain stages of their growth.

Vol. II., p. 413, a note on the winter pruning of vines, which is of importance to the young gardener—by Mr. Main.

Vol. III., p. 12, on the prolongation of grapes, by J. M. At p. 24. On raising vines from layers, by Green.

Vol. IV., p. 407. On hanging trellises for Grapes, by James Barnett.

Vol. VI., p. 12, and at p. 129. On the anatomy of the vine, by Wm. Capper, Esq.

Vol. X., p. 137. On the premature shrivelling of grapes in forcing houses, by J. D. Parkes, Nurseryman.

And at p. 138. On the coiling system, by J. Mearns.

At p. 266. Notes on vines and vineries, by an Experienced Grape-grower.

At p. 547. A diary of the course of culture applied to the grape-vine, by A. Forsyth.

Vol. XI., p. 362. Remarks on the coiling system of vines, by Fish.

p. 90. Journal of a visit to the principal vineyards of Spain, France, &c., by James Bushby, Esq.

p. 435. A defence of the coiling system, by Mr. Marnock.

p. 490. On the coiling system of vines, by Mearns.

p. 492. Remarks on the coiling system, by Fish.

p. 493. On the shrivelling of Grapes, by J. D. Parkes.

p. 549. Observations on the coiling system, by Glendinning.

p. 602. On the Tottenham Dark Muscat grape, and on the same page Mr. Fish, in reply to Mr. Marnock on the coiling of vines.

p. 603. Mr. Marnock in reply to Mr. Fish on the coiling of vines; and on the same page Agramome's Nephew on shrivelling of grapes.

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